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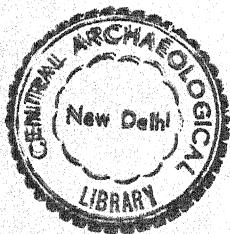
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ARCHAEOLOGY OF THE UPPER COLUMBIA REGION

By

DONALD COLLIER, ALFRED E. HUDSON, AND ARLO FORD



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PREFACE AND ACKNOWLEDGMENTS

This paper presents the results of field work carried on by the Columbia Basin Archaeological Survey in eastern Washington from July, 1939, through September, 1940. During this period a reconnaissance was made along both banks of the river from Grand Coulee Dam to the Canadian boundary above Northport, a distance of about one hundred fifty miles, covering approximately the area above the dam which is to be flooded. In this region extensive excavations were made at thirty-five Indian sites which seemed most likely to yield significant results. An analysis of the finds from these sites comprises the greater part of the report.

From its inception the Survey was a cooperative undertaking sponsored by several institutions, organizations, and governmental agencies. The heaviest burden for the support of the project and its direction fell upon the Eastern Washington State Historical Society of Spokane and the National Youth Administration of Washington. The former was instrumental in the organization of the project and its continuance in spite of difficulties; the latter maintained the camps and furnished from its rolls the services of Youth Workers for manual labor. The scientific direction of the field work was under the auspices of the Department of Anthropology of the University of Washington and the Department of Sociology and Anthropology of the State College of Washington.

During the course of reconnaissance and excavations great practical assistance was rendered to the Survey by the officials of the Bureau of Reclamation, by the Works Progress Administration, and by the Civilian Conservation Corps. The cooperation of the Nespelem Agency of the Bureau of Indian Affairs is gratefully acknowledged.

Preparation of the report has been facilitated by the generosity of the State College of Washington in providing laboratory space, technical assistance, and fellowship aid to the junior author. Through funds of the National Youth Administration the services of a draftsman for the figures and drawings were obtained.

The authors are deeply conscious of their indebtedness to the many individuals who, separately and collectively, have contributed time, money, advice, equipment, and encouragement to the Survey. Particularly they wish to record their gratitude to Mr. Joel E. Ferris of Spokane, who personally and as Chairman of the Special Committee of the Eastern Washington State Historical Society, gave his unstinted support, enthusiasm, and effort, without which the work could have been neither begun nor finished. Through the efforts of Mr. Ferris additional financial support was given by Mr. W. H. Cowles, Sr., Mr. E. A. Shadle, and Mr. W. W. Powell, all of Spokane. The initial interest of the Inland Empire Indian Relics Society and particularly of its founder, Mrs. Edith Dunning, in preserving the antiquities of the Columbia Basin was to a large extent responsible for the inception of the project.

Our obligations for technical and scientific aid are many. Particularly we wish to thank Dr. Erna Gunther and Dr. Verne Ray of the Department of Anthropology, University of Washington, for their professional advice and assistance, and Dean C. C. Todd of the State College of Washington for his cooperation and valuable help at all times. Special acknowledgments are due to Mr. Roger Kohlstaedt for his work in cataloguing specimens and preparing the drawings. The active participation of Malcolm Carr in both the field work and in the preparation of the report has made our tasks lighter.

The names of Mr. Alex Krieger, Dr. Phillip Drucker, and Mr. Joseph Jablov might fittingly be included as joint authors since they have each at various times been in active charge of field work. Under their direction a great part of the archaeological evidence presented here was obtained, but they must be absolved from responsibility for all errors of interpretation in the final report.

In addition to the above general acknowledgments we wish to express our sincere thanks to the following: Mr. Charles R. Kirk and Mr. Joseph E. Border of the National Youth Administration; Mr. Hiram B. Ferris of Spokane for the loan of tools and equipment; Dr. Charles D. Campbell, State College of Washington, for identification of rocks and minerals; Dr. H. R. Lupher, State College of Washington, for identification of bison bones and teeth; Dr. George E. Hudson, State College of Washington, for identification of animal bones and teeth; Dr. W. R. Hatch and other members of the Botany Department at the State College of Washington for identification of seeds; the United States National Museum for identification of animal bones and teeth; Professor L. M. O'Neale, University of California, for analysis of textiles; Mrs. Martha R. Flahaut, Washington State Museum, University of Washington, for identification of shells; Mr. Robert L. Stephenson, for his work during the organization of the project and the preliminary reconnaissance; Mr. Billy Andrews, who acted as informant to Mr. Krieger in locating sites; and Mrs. Edith Bauer of Marcus for her efficiency and cheerfulness as camp cook.

Two whole classes of individuals must, because of their sheer number, remain anonymous, although we are acutely aware of our indebtedness to them all. The first includes all those residents, Indian and white, of the area studied, whose local knowledge, interest, and hospitality contributed to the progress of our work. Finally with pleasure we remember and thank the young men enrolled by the National Youth Administration who shared with us the satisfactions and disappointments of archaeology.

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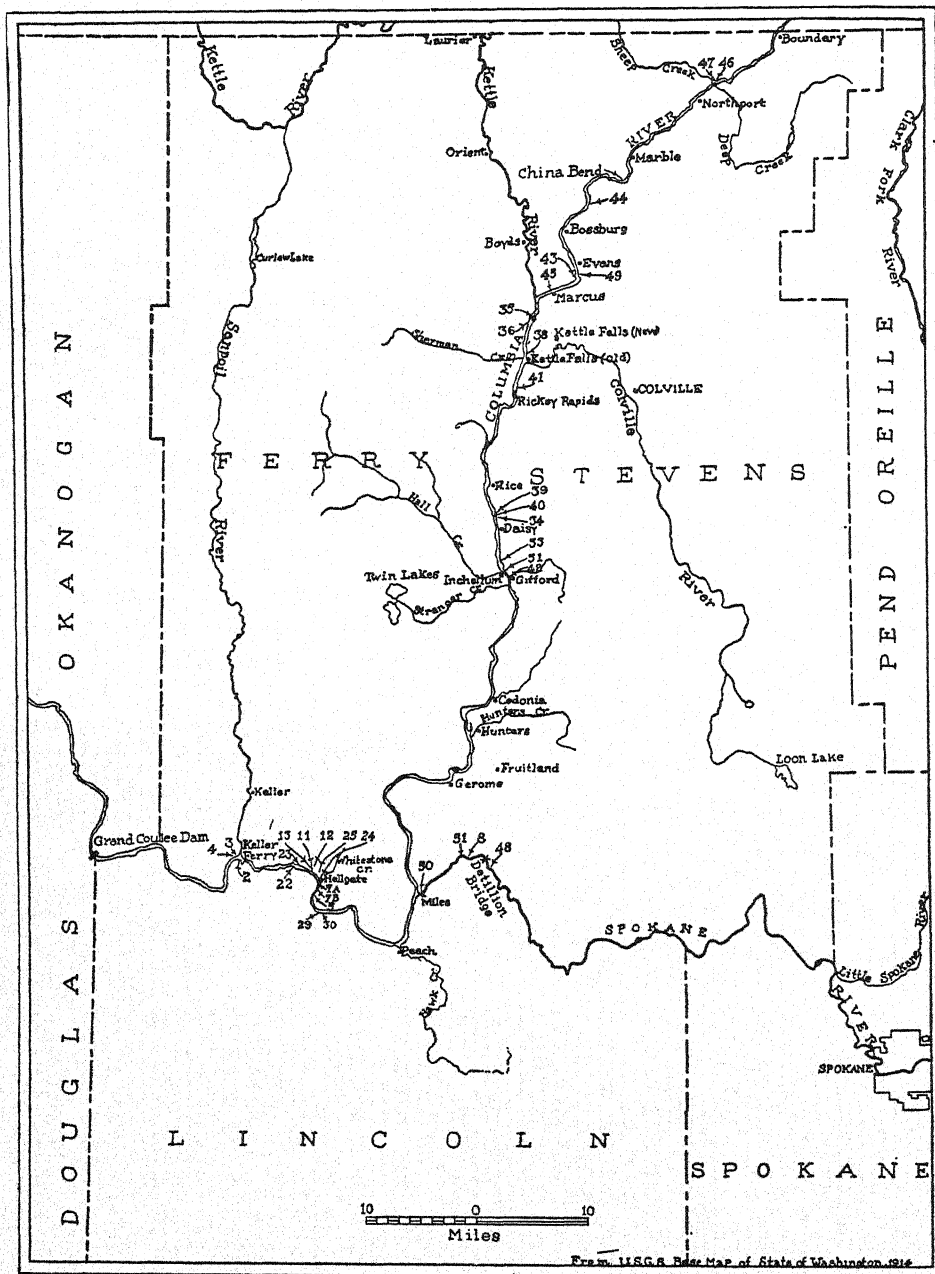
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Columbia River Region of Northeastern Washington, Showing Sites Worked.

INTRODUCTION

GEOGRAPHY

The area covered by the Survey extends through part of two physiographic provinces: the Okanagon highlands and the Columbia lava plateau. The topography and vegetation of the two differ markedly.

The Okanagon highlands are a northwestern projection of the Rocky Mountains; their moderately rounded summits reach heights of some five thousand feet. Through these hills the Columbia flows in a winding but generally north-to-south course. The land rises from the river banks in broad terraces, or "benches," toward the foot of the hills. Most sites were found on the lower benches, especially at points where tributary streams entered the river.

Such tributaries, especially small creeks, which have cut narrow gulches across the river terraces, are numerous. The largest of these is the Kettle River which enters the Columbia just north of Kettle Falls.

The country along the river terraces is generally prairie or park land over which extend wide areas of bunch-grass broken at intervals by groves of pine. The hills above are more heavily forested.

About ninety miles south of the Canadian border the Columbia receives the waters of the Spokane, a major tributary. A few miles beyond this confluence the river turns sharply westward. It has now entered the lava plateau, a bed of basalt formed by successive lava flows which is in some places 4000 feet thick. Across this plateau the river has cut a great gorge several hundred feet deep. There its valley slopes are narrower, deeper, and more precipitous than along its course through the Okanagon highlands. In many places the river terraces have given way to sheer canyon walls. Vegetation is sparse. Sage-brush is the principal plant and trees are rare.

Through this type of country the Columbia continues westward, past the mouth of the Sanpoil and out of the area covered by our Survey.

At the beginning of the historical period, in the early nineteenth century, the regions of northeastern Washington included in this report were occupied by several Indian groups which may loosely be called tribes. The people usually known as the Lakes, most of whose territory lay in Canada, also occupied the Columbia valley south of the present international boundary approximately to Kettle Falls. From this point downstream to about the present town of Hunters was the country of the Colville. From there south to the Big Bend the Columbia seems to have separated Sanpoil territory from that of the Lower Spokane group.

The former occupied the right bank of the river and the latter the left. Beyond the Big Bend both sides of the river were Sanpoil country.¹

European influence made its first impression on the tribes of the upper Columbia basin in the early years of the nineteenth century as a result of the activities of fur traders, particularly those of the North West Company. The first white man, so far as is known, who explored the reaches of the river with which our Survey was concerned, was David Thompson in July, 1811.²

SCOPE AND PROCEDURE

A brief summary of the history of the Survey and the conditions under which it operated is relevant to a proper evaluation of its results.

No previous accounts of archaeological work in the area covered by this survey have been published, although local collectors have gathered a number of surface finds and many burials have been disturbed by curio hunters. Our work links the results of previous reports of the archaeology of the lower and middle Columbia³ and Snake⁴ regions with those of the Fraser and Thompson river valleys.⁵

During the summer of 1939 a reconnaissance of the Columbia basin between Grand Coulee Dam and the Canadian boundary was made under the direction of Mr. Alex Krieger, then of the University of Oregon, assisted by several of his students, including the junior author. During this preliminary survey no attempt was made at systematic excavation, but a large quantity of data relating to potential sites was gathered from surface indications and from informants. On the basis of this information it appeared that the vicinity of the mouth of the Sanpoil River was a favorable place for further work, and a camp was therefore established at Hellgate in September. At this time also the National Youth Administration agreed to furnish labor for the project and to meet the cost of maintaining the camp. The University of Washington and the State College of Washington assumed responsibility for the scientific sponsorship of the work and provided equipment and field funds. Simultaneously, Mr. Krieger was called to new work in Texas, and the direction of the Survey was taken over by Dr. Phillip Drucker from the University of California.

Under the supervision of Dr. Drucker, intensive excavation was carried on at and near Hellgate. In late autumn it became necessary to move the camp before winter snows should render it inaccessible to supplies.

A new base of operations was therefore selected at Gifford, about eighty miles upstream from Hellgate on the opposite bank of the river. After estab-

¹ Spier, *Tribal Distribution in Washington*, pp. 5-11, 43.

² Thompson, *Narrative*, pp. 472-474.

³ Strong, *Archaeology of the Dalles-Deschutes Region*; Smith, *Archaeology of the Yakima Valley*; Krieger, *A Prehistoric Pit House Village Site on the Columbia River at Wahluke, Grant County, Washington*; Perry, *Notes on a Type of Indian Burial in Mid-Columbian District of Central Washington*.

⁴ Spinden, *The Nez Percé Indians*.

⁵ Smith, *Archaeology of Lytton, British Columbia*; and *Archaeology of the Thompson River Region, British Columbia*.

lishing camp and commencing excavations in the new locality, Dr. Drucker resigned as director of the project in order to participate in archaeological work in Central America. His place was taken in December by Mr. Joseph Jablow from Columbia University.

During the winter of 1939-1940 progress was considerably hampered by severe weather and frozen ground. Work was carried on at a number of sites both upstream and down from Gifford. Numerous test excavations were made at other points with, on the whole, disappointing results. Mr. Jablow resigned in April, 1940, and for several weeks Ford was in active charge of the project.

Collier and Hudson took over their duties as co-directors at the beginning of May, when it was immediately necessary to move camp again because of the rapidly rising water level. A careful consideration of possible alternatives led to the selection of a new base near the town of Marcus, thirty miles above Gifford. From here it was possible to work both sides of the river from Kettle Falls to the international boundary. During the early summer the results of exhaustive test trenching in this area were meager, but the subsequent discovery near Northport of two sites fully as productive as those at Hellgate gave encouragement and zest to the last part of the season's work. The final fortnight was devoted to a re-examination of certain areas possibly slighted previously, especially the region about the mouth of the Spokane. Field work was terminated and the camp broken up at the end of September, 1940, fourteen months after the first reconnaissance.

The burden of classifying the material and preparing the manuscript for publication has fallen largely on Collier and Ford. In periodic conferences all three authors have considered problems of interpretation, concerning which they are in complete agreement.

The greater part of the material which forms the basis of this report will be on permanent exhibition at the Museum of the Eastern Washington State Historical Society in Spokane.

EVALUATION OF METHODS AND RESULTS

It is obvious from the above brief history of the project that it did not operate under the most favorable conditions. Certainly the greatest difficulty, as revealed in the preparation of the results for publication, arose from the lack of continuity in leadership. Many of the sites worked during the first months of field work and flooded soon thereafter have never been seen by the senior authors. Even the most copious and accurate field notes seldom mean as much to a stranger as they would to their writer who can visualize the background for each statement. Of the nearly one hundred individuals who in one capacity or another were at some time connected with the Survey, only Ford has been with it from the beginning. The circumstances which produced such a situation were of course unavoidable in this case, but could they have been avoided the work would have benefited in plan, execution, and compilation.

The Survey was also sometimes hampered by lack of flexibility arising from the necessity of maintaining permanent camps for the National Youth Admin-

istration workers. This situation was admirably adapted to long continued excavations in one locality but markedly handicapped extensive reconnaissance over a wide area.

The steady rise of the water level back of Grand Coulee Dam put a premium on speed. Many places had necessarily to be slighted or only superficially examined as the water lapped about our heels.

A major calamity, from the archaeological point of view, arose from the activities of a firm of undertakers, hereafter referred to as the disinterment project. They were awarded a contract by the Bureau of Reclamation to remove recent, marked Indian graves to new cemeteries above future water level. They carried out this task with such enthusiasm, however, possibly stimulated by the piece-work basis of their contract, that several hundred prehistoric burials were removed in such a way as to destroy completely the archaeological evidence.

These observations are made not with any thought of excusing possible shortcomings in our work but rather because of their pertinence to an evaluation of the validity of its results and because our experience may prove helpful to others.

In spite of its deficiencies we believe our material represents a fairly reliable and valid sample of the archaeology of the upper Columbia. We consider it doubtful that further field work, had it been possible, would have materially modified either the character of our finds or our conclusions therefrom.

SUMMARY OF SITES WORKED

METHODS AND EXTENT OF WORK

The immediate aim of the Columbia Basin Archaeological Survey was to obtain as much information as possible about the archaeological remains within the area to be flooded by Grand Coulee Dam. Pressure for time was felt throughout the period of work, and survey plans had to be adjusted to the water level as it rose behind the dam. Because of these factors our procedure was to carry out a careful reconnaissance with extensive test excavation and intensive excavation at strategic sites. The work was confined almost exclusively within the high-water contours of the future lake.

Every available source of information was utilized in locating sites. The ethnological researches of Dr. Verne Ray on the location of Indian villages¹ were most helpful. Much valuable information was obtained from Indian and white residents of the area. Location of sites by archaeological methods was difficult in most parts of the region. The surface is heavily sodded except in the south, and there were no surface indications of structures to aid in finding sites. Stone artifacts and chips were frequently found on the surface, but in many cases these were no more abundant at sites which proved to have been intensively occupied (this was particularly true of sites with deep occupation levels) than at other places along the river. Often evidences of human occupation were exposed by river cutting. Because of the difficulty of finding archaeological sites a large amount of test excavation was necessary. Both banks of the Columbia from Keller ferry to the Canadian border, as well as the banks of the lower Spokane and Kettle rivers, were examined as carefully as circumstances permitted. In addition to the numbered sites described in this report, a much larger number of locations appearing favorable to Indian habitation, or which were indicated as sites by various sources of information, were investigated by means of test pits or trenches. Those which lacked evidence of more than sporadic human occupation were not given site numbers. At least half of the test trenches dug yielded no significant results.

TYPES OF SITES

Three types of sites were investigated. The first of these is habitation sites. Large and deep deposits of refuse material indicated the location of permanent village sites which had been long occupied, while meager deposits of refuse material indicated sporadically used camp sites. No house structures were found; the only structural remains to throw light on domestic habits were stone hearths and areas of burned stones which we believe to be earth ovens. The second type of site is shell middens of small extent containing almost no evidence of human occupation. The larger shell middens are not found on or particularly near the large permanent village sites, although a small amount of shell is found in all village deposits. We believe that these larger shell middens were located

¹ "Native Villages and Groupings of the Columbia Basin," pp. 99-152.

adjacent to large clam beds and were visited only for short periods during times of famine. The third type of site is cemeteries. These were located in talus slopes along the river bluff, or more commonly on the sandy beaches close to the river. In many cases they were within a mile or less of a habitation site, although no extensive cemetery was found near our largest village site (site 11). About half of all artifacts recovered, and nearly all the more elaborate artifacts, were found associated with burials.

DESCRIPTION OF SITES²

Site 2

Site 2 is just east of the Keller ferry landing on the south bank of the Columbia opposite the mouth of the Sanpoil (lying on the line between Secs. 8 and 9, T. 28 N., R. 37 E.). This site consisted of pit burials in the sand along the river bank. Trenches were sunk along the bank parallel to the river and eleven burials removed; no doubt others remained. We were informed that several other burials had been exposed by a road crew when grading the ferry landing. Of the eleven burials which we found, two were marked by stone circles and cedar planks, two by stone circles only, two by cedar planks only, and five were unmarked. Probably some of the stone markers were missing as a result of disturbance by campers and picnickers. Associated with the burials were a carved whalebone club, maul, hammerstone, stone points and knives, a bone awl, beads and ornaments of shell, a copper fragment, and tubular copper beads. On the surface were an unidentified chipped slate object, and pestles and hammerstones.

Site 3

Site 3 is a rock slide along the bluff at the bend of the river just below the north landing of Keller ferry (Sec. 5, T. 28 N., R. 33 E.). There were formerly at least a dozen rock slide burials here but all had been removed by relic hunters, who left many fragmentary human bones scattered on the talus slope.

Site 4

Site 4 is a small rock shelter in the bluff above the rock slide at site 3. It is 8 feet deep, 10 feet long, and 8 to 10 feet high. This shelter is too small to have been used extensively, although it is smoke-blackened. On the walls are two pictographs (a human figure and an arc with rays) in red pigment, and traces of others.

Site 5

Site 5 is a small rock slide at the bend of the river about three-quarters of a mile east of the mouth of Whitestone Creek (near S.E. corner of Sec. 16, T. 28 N., R. 34 E.). At least four burials here had been rifled by relic hunters.

² All of the sites here described will be submerged by 1942. The landmarks referred to are as of the summer of 1940. Site numbers for which there are no descriptions (e.g., 1, 6, 9, etc.) were given during reconnaissance to certain localities which later failed to yield any results.

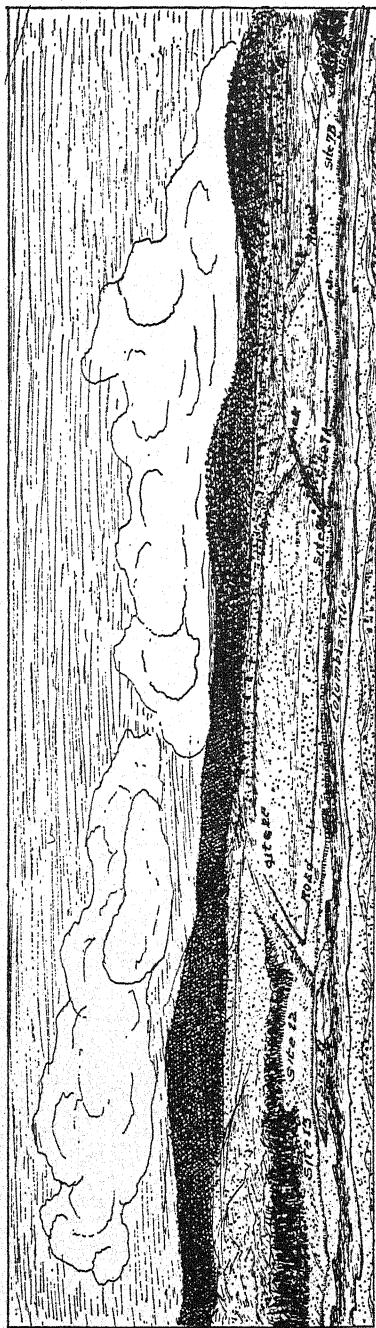


Figure 1. General View of Whitestone Creek Region

We found only two undisturbed burials. They were of the usual rock slide type, with cedar stake markers projecting from the rock slide above the burials. No artifacts were associated with these burials.

Site 7A

Site 7A is on a knoll on the east side of Whitestone Creek at its mouth and extends for 100 feet up the bank of the Columbia (Sec. 16, T. 28 N., R. 34 E.). Several burials here had been opened by curio hunters. Eight gravel pit burials were removed by us. Six of these were marked with stone circles on the surface. No cedar plank enclosures were found above the bodies. Associated with the burials were side scrapers, hammerstones, dentalium and olivella beads, beaver tooth dice, perforated elk teeth, bone awls, a copper pendant, iron fragments, and red ochre.

Site 7B

Site 7B is one-half mile up the bank of the Columbia from 7A (Sec. 16, T. 28 N., R. 34 E.). Thirteen burials were removed from along the river bank. These were of the pit type, but lacked surface stone markers and cedar planks over the body. The matrix here was a sand and gravel mix washed and blown in, which extended 30 or 40 inches down to the river gravel and boulders. Only a hammerstone, a few dentalium beads, a fragment of sewn matting, and glass trade beads were found associated with these burials.

Site 8

Site 8 is an extensive rock slide on the north side of the Spokane River one and a half miles below Detillion bridge (Sec. 11, T. 28 N., R. 36 E.). Originally there were possibly thirty burials in this rock slide but some were removed by relic hunters and others by the disinterment project. We excavated twelve burials here. They were of the usual rock slide type, made by excavating a hole 2 to 4 feet deep in the talus slope, within which the body was placed and then covered with rock. They were marked by cedar stakes projecting from the rocks above the burials. The burials near the base of the talus slope usually had enough rocks piled on them to form a low mound a foot or so above the surface of the slope, but those farther up the slope were not so distinguished and could be located only by means of the cedar stakes. The artifacts associated with these burials were as follows: iron nails and iron fragments, catlinite elbow pipe of Plains type, dentalium and shell disc beads, elk tooth beads, large numbers of tubular copper beads, bone awls and bodkins, bone arrow wrench, stone points, pestle, red ochre, and a fragment of coiled basketry. A large tubular pipe of talc schist was recovered from a disturbed burial.

Site 11

Site 11 is on the south side of an island at the extreme west end of Hellgate Flat (figs. 1 and 2) in Sec. 17, T. 28 N., R. 34 E. This is an island during high water; at other times lagoons run in from the river on the east and west but the center

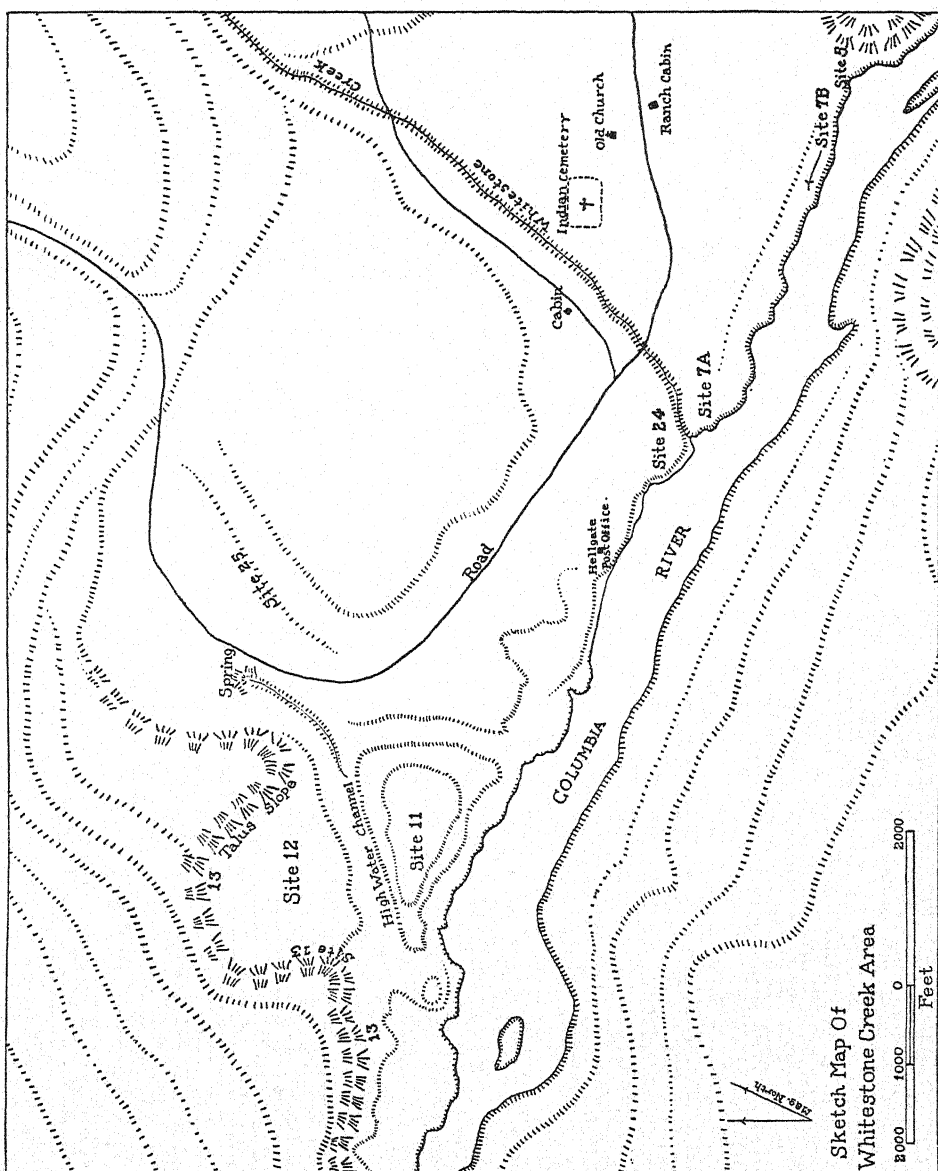


Figure 2. Sketch Map of Whitestone Creek (Hellgate) Region

of the island is connected with the mainland. There is a ridge running across the island from east to west (fig. 3). There are a few willows growing close to the water and the rest of the island is covered with the tall, coarse grass that grows in this locality. Only once in the memory of the old settlers did the river rise high enough to flood the island completely. The island is composed largely of sand deposited by river and wind. The location affords little protection either in summer or winter. The island juts far enough out into the river to catch the wind which so often blows up or down stream, and there are no trees to give either shelter from the wind or shade. Despite these drawbacks, the island was inhabited for a long time. Probably this was because of its accessibility to the water; it would be a convenient place to land canoes because of the slower current at this point, the lagoons, and the easily climbed bank, which is lower and less steep than at any other place along the flat.

The river erosion on the south side of the island has exposed a steep cut revealing fired areas as deep as 60 inches, and animal bone, shell, and burned stone are numerous throughout the exposed section.

Five trenches were dug through the site to depths of from 36 to 108 inches. These are shown on the contour map (fig. 3). At least three distinct occupational levels were revealed, and large quantities of animal and fish bones, and specimens of worked bone, antler, and stone were found. The vertical distribution of these is given in Appendix A. A stone hearth and areas of burned rocks were found but no house structures could be identified. No burials were found at or near site 11. The nearest burials were one-half mile away in the rock slide at site 13. A description of each trench follows.

Trench 1 is 6 feet wide and 50 feet long, and runs east and west on the south side of the site approximately 40 feet from the river. Sterile gravel is reached at 72 inches. A profile of the trench is shown in figure 4. From the surface to a depth of 8-10 inches is fine, loose, wind-blown sand. Below this is a layer (mix-level 1) of compact, gray, ashy material containing fragments of charcoal, rock fragments, and flint chips. This layer continues to about 33 inches where it gradually grades without sharp break into clean yellow sand. At 40 inches there is a transition from the yellow sand to a second layer of gray mix (mix-level 2) containing a considerable quantity of animal bones, flint chips, and a few fragmentary artifacts. This stratum extends to 46-48 inches, sloping slightly toward the west. There follows a layer of clean yellow sand 6-12 inches thick, below which is a third mix-level 12 inches thick (mix-level 3) beginning at 54-56 inches. Separating mix-level 3 from the sterile gravel at 72 inches is another layer of clean yellow sand.

Trench 2. A triangular section of the bank 25 by 10 feet, over the fire lens exposed by the cutting of the river, was stripped off to a depth of 3 feet. At 30 inches there was a burned layer containing a pile of burned rock, and bone and flint chips, but no house structures or artifacts were found.

Trench 3, running east and west along the crest of the island, is 5 feet wide, 70 feet long, and extends to loose yellow sand at 72 inches. A profile of the

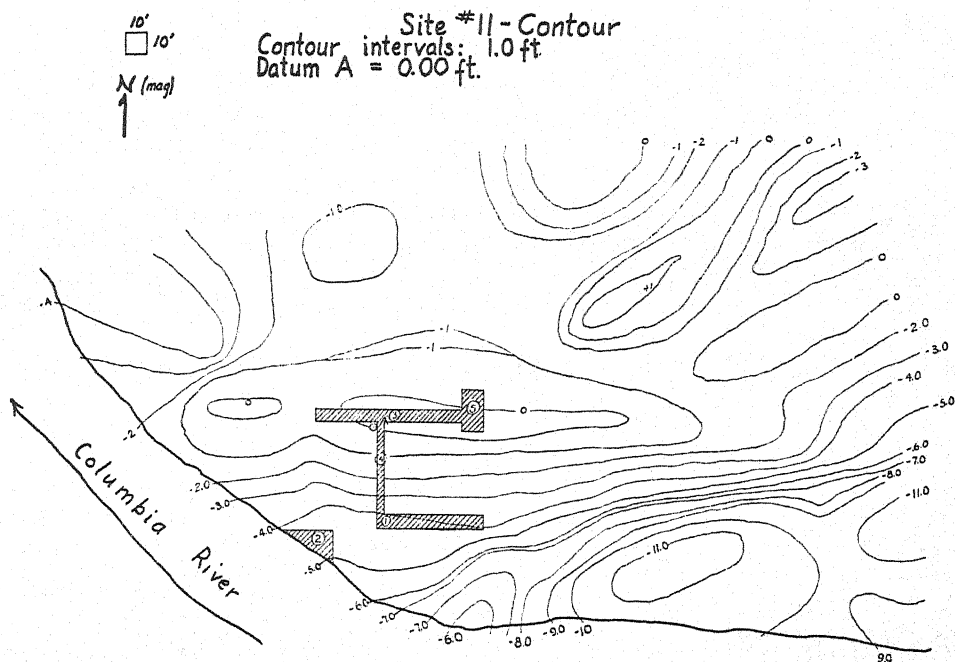


Figure 3. Contour Map of Site 11

trench is shown in figure 5. From the surface to 6-8 inches is loose wind-blown sand like that in trench 1. Below the sand to a depth of 44 inches is a layer of rich occupational debris (charcoal and ash), with greatest concentration from 32-44 inches. This concentrated mix-level is highest in the middle of the trench and slopes downward at either end. From 44 to 54 inches is a layer of clean yellow sand. From this point to the bottom of the trench at 72 inches there are three thin layers (3 inches thick) of compact gray sand separated by layers of clean yellow sand. These gray sand layers, although the upper two are associated with burned areas near the middle of the trench, do not appear to have been laid down in connection with human occupation but rather to have been precipitated during extremely high summer floods. Near the center of the trench a pit intrudes from the upper mix-level through the first two layers of compacted gray sand. No refuse material or artifacts came from this pit. A test trench sunk in the bottom of trench 3 revealed sterile yellow sand to a depth of 72 inches.

Trench 4, 3 feet wide and 45 feet long, runs north and south on the 10 per cent south slope and connects trenches 1 and 3. The trench is sunk to an average depth from the surface of 72 inches, and a test trench in the south end is carried to 108 inches. A profile is given in figure 6. The usual top layer of loose sand 6-8 inches thick is followed by an occupational layer of dark gray mix averaging 18 inches thick. This stratum is similar in character to the upper occupational layer found in the other trenches. It is separated from the next occupational level by a 6-inch layer of sterile sand. The second mix layer begins 36 inches below the surface at the south end and 24 inches at the north end, and is 12 to 18 inches thick. Below it are thin layers of compact gray sand, like those at the bottom of trench 3, interspersed with layers of sterile yellow sand. There is one burned area at a depth of 5 feet at the lower end of the trench. The pit at the south end of the trench extends to 108 inches. It reveals the continuation of the loose yellow sand, with traces of water sorting. A fragment of a quartzite scraper or knife was found at 84 inches and an antler knife handle at 90 inches, but there was no other evidence of human occupation.

Trench 5, 20 feet by 10 feet, runs at right angles to the east end of trench 3. The same sequence is found here as in trench 3.

Summary. All of the trenches except trench 2 reveal two distinct occupation levels separated by a layer of sterile sand 3 to 12 inches thick. There is apparently a third and still deeper occupation level in trench 1, which appears sporadically in trench 4 and not at all in trenches 3 and 5. Below these strata to a depth of 72 inches there is evidence of temporary and scattered human occupation. It appears that during its earliest period the site was occupied only occasionally for short periods by a few people. Later there was a more intensive occupation of the lower, southern portion of the site. There is some confusion here (mix-level 3 in trench 1, and the lowest 2 feet in the main section of trench 4), probably due to frequent flooding of this part of the site during high water. There followed two intensive periods of occupation of the whole site, separated by a period of abandonment. There is thus a favorable situation for the estab-

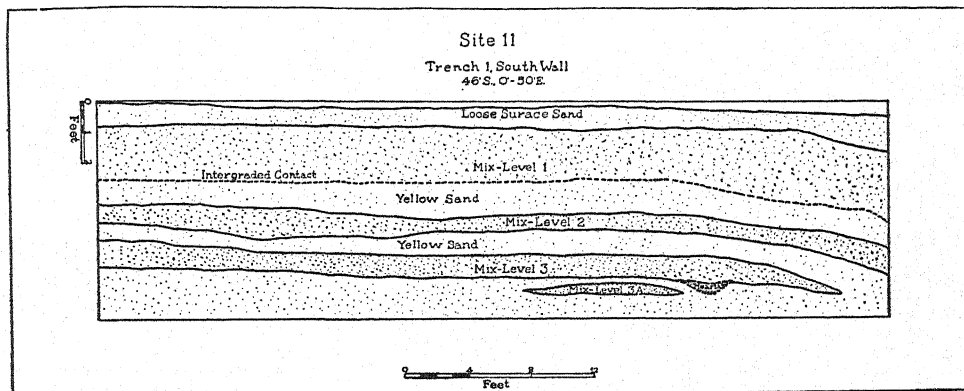


Figure 4. Profile of Trench 1 at Site 11

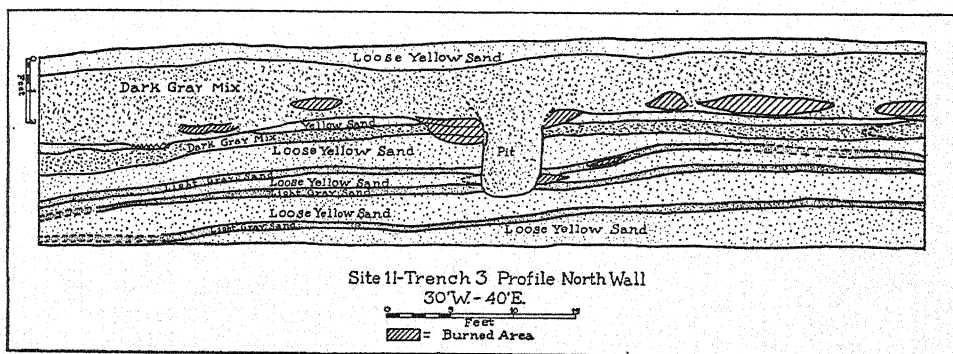


Figure 5. Profile of Trench 3 at Site 11

lishment of a stratified cultural sequence. However, upon examining the tables in Appendix A it will be seen that it is not possible to discern any significant cultural changes from the earliest to the latest level of occupation. There was evidently considerable stability during the period of occupation. It should be noted that the deepest artifact was an antler knife handle, and the second deepest, a quartzite scraper. Worked bone and antler, and a few chipped points and scrapers are also deepest at sites 24, 31, and 45. Quartzite scrapers have the most extensive distribution horizontally and vertically of any single class of implements.

No articles of non-Indian origin were found at site 11. It was, therefore, probably abandoned before 1800. How much time elapsed from the earliest to the last occupation of the site it is impossible to say, but it may well have been several hundred years.

Site 12

Site 12 is a camp site about one-third of a mile north of site 11 on a high bench at the southwest corner of Sec. 8, T. 28 N., R. 34 E. This bench is at the foot of the bluffs that enclose Hellgate Flat on the northwest and extend from site 12 westward to Hellgate Rapids, in places rising in a perpendicular wall from the river. The bench at site 12 is about 200 yards long and runs back 100 yards to the foot of the cliff. Test pits were sunk revealing evidence of occupation down to 6 inches only. A few point fragments, knives, and hammerstones were found. There were several clam shell heaps. Evidently this was a temporary camp site.

Site 13

Site 13 is a series of rock slides back of site 12 beginning at the southeastern corner of Sec. 7, T. 28 N., R. 34 E., and extending one-half mile down river. A number of burials in the rock slide had been opened and only one undisturbed burial was found, containing elk teeth and fragments of a large coiled basket. It was marked by a cedar post projecting from the rocks above the burial.

Site 22

Site 22 is a sand dune, on the south side of the river just above Hellgate Rapids (Sec. 13, T. 28 N., R. 33 E.), containing bone, worked stone, burned stone, and other debris. A large amount of cultural material has been eroded from the riverward face of the dune. Among the specimens collected from this source were dentalium shells, chipped points, and worked bone. In the course of the migration of the dune the cultural material has undoubtedly been stirred up and mixed continually, and it was not thought worth while to do any excavating. The proximity to the rapids suggests that this was a fishing site.

Site 23

Site 23 is a terrace 125 yards long and 50 yards wide one-half mile above Hellgate Rapids on the north side of the river (Sec. 13, T. 28 N., R. 33 E.).

There are several saucer-like depressions 15 to 30 feet in diameter. A test pit in one of the larger of these showed burned stone, charcoal, and a deer carpal, but other tests revealed no evidence of human occupation. Tests adjacent to the depression revealed apparently sterile sand with some river gravel. Hammerstones, scrapers, knives, and points were found on the surface. The depression containing occupational debris may have been a pit house. It constitutes the only indication of this sort throughout our area. Unfortunately, the site is accessible only by boat, and the rising water had covered it before it was possible to return for further work.

Site 24

Site 24 is on the north bank of the Columbia extending from the mouth of Whitestone Creek for 200 yards down the river. The line between Secs. 16 and 17, T. 28 N., R. 34 E., runs through the east end of the site. It consists of low tumuli containing great quantities of waterworn gravel and rocks, and a dark greasy-looking mix. At the west end of the site are low mounds consisting of light gray sandy mix with some stone, and burials. The sand dunes are grass-covered and contain grass roots down to the river gravel substratum. Five trenches were put down in various parts of the site (fig. 7), revealing concentrated occupational debris to a depth of 47 inches in the central part of the site (trenches 1, 4, 5), and less concentrated deposits at the east end (trench 3) and west end (trench 2). Thirty-eight burials were uncovered, seventeen of these being in the concentrated midden area in the central part of the site. The burials were marked on the surface by stone circles, and charred cedar plank enclosures were over the bodies. A very large number of artifacts of stone, bone, and shell came from the trenches and burials, and European trade goods came from a number of burials. The vertical distribution of cultural materials is shown in Appendix A.

There follows a description of the trenches:

Trench 1 (50 feet by 10 feet) is in the center of the site near the bank, revealing a well-defined occupational stratum extending to a depth of 47 inches and containing many animal bones, shells, fired areas, and worked articles of bone and stone.

Trench 2 (40 feet by 10 feet) is put down through the coarse dark gravel mix at the west end of the site, revealing an undifferentiated deposit of animal bones, shell, and charcoal, extending to a depth of 33 inches, and sterile gravel.

Trench 3 (30 feet by 10 feet) is at the edge of the bank where Whitestone Creek enters the Columbia. The deposit consists of gray sandy mix containing shell, charcoal, and a few bone and stone artifacts. The depth varies from 29 to 49 inches.

Trench 4 (30 feet by 10 feet) is 20 feet north of trench 1 on one of the higher spots of the site. The occupational deposit, extending to 47 inches, is similar to that in trench 1, although there is less concentration of clam shell. A mix-filled pit 3 feet in diameter and extending to a depth of 56 inches was found at the center of the trench.

Site 24

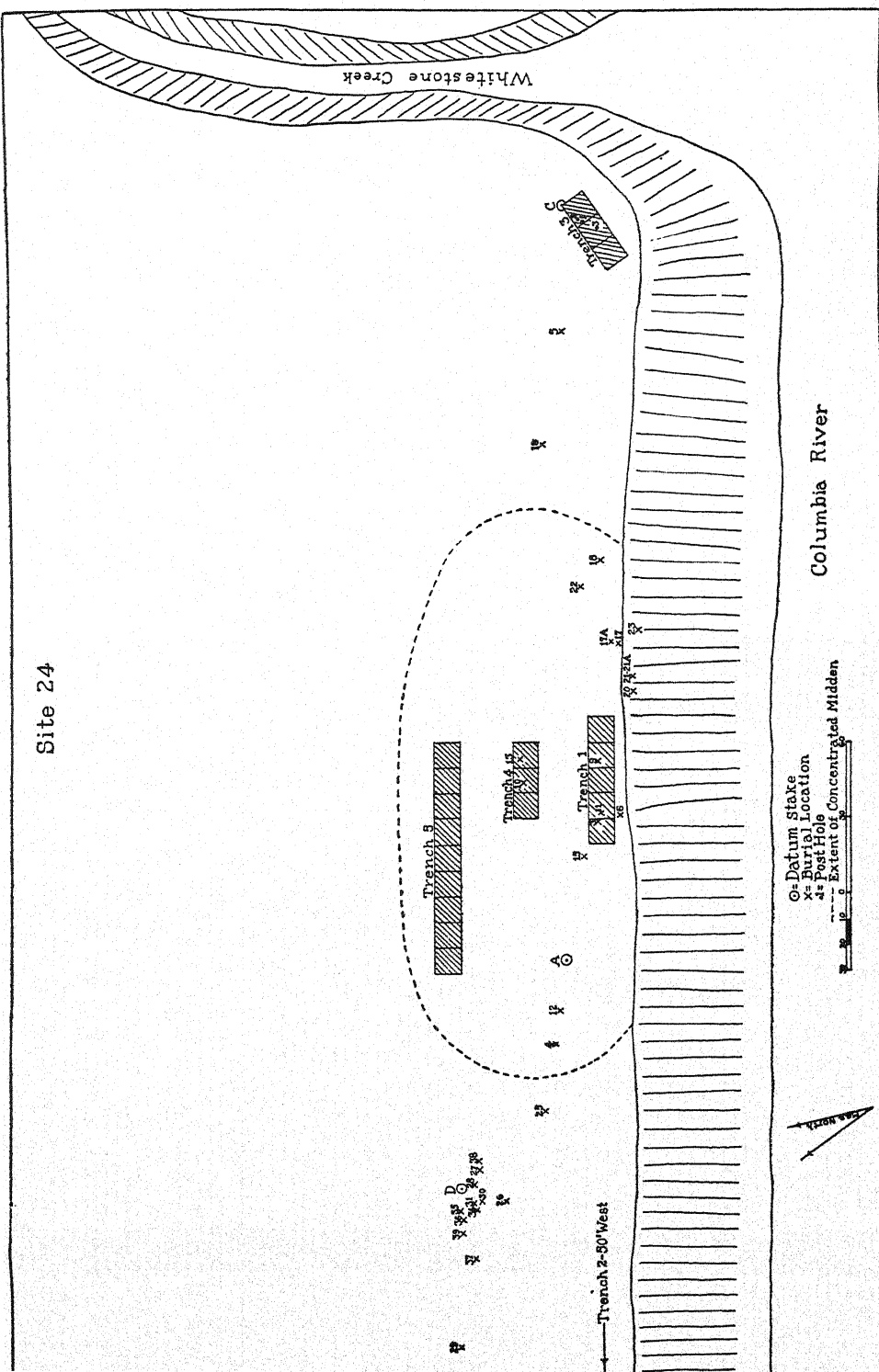


Figure 7. Plan of Site 24

Trench 5 (90 feet by 10 feet) is 20 feet north of trench 4. It contains occupational debris of a depth and character similar to that in trench 4.

Summary. The central part of the site consists of a concentrated, undifferentiated midden extending from the surface to a depth of 47 inches. The east and west ends contained similar deposits of much less concentration. No evidence of habitation structures was found anywhere in the site. Thirty-eight burials were found, of which seventeen were intrusive into the concentrated midden area. Thirteen of the latter contained objects of European origin (table A). A few non-Indian objects were found in the midden debris but none occurred below a depth of 23 inches (Appendix A, table 21). Site 24 appears to have been occupied continuously, but more recently and for a shorter period than site 11. The upper 2 feet of the midden contain a small number of objects of non-Indian origin indicating occupation in historic times, but the lower 2 feet are prehistoric. The burials containing considerable numbers of European objects, all of which are intrusive into the lower, pre-European portion of the midden, are likely to be contemporaneous with the surface or immediate sub-surface of the midden and probably date from 1820 or later.

TABLE A
BURIALS CONTAINING EUROPEAN OBJECTS INTRUSIVE INTO CONCENTRATED
MIDDEN AT SITE 24

Burial.....	2	3	4	6	11	13	15	17	21	22	23	25	29
Depth (inches).....	28	34	27	34	36	36	30	36	38	30	27	48	34
Glass beads.....	..	x	..	..	..	..	x	x	x	..	x	..	x
Copper beads.....	x	..	x	x	..	..	..	x	x	..	x	..	..
Other copper.....	..	..	..	..	x	x	..	..	x	..	x	x	..
Iron.....	x	..	..	..	..	..	..	..	x	x	..	..	..
Rock circles.....	..	..	..	..	..	x	x	x	..	x	..	x	x
Cedar planks.....	x	..	x	x	x	x	x	x	x	x	..	x	..

Site 25

Site 25 is a low sand dune one-half mile northwest of site 24 (in the center of Sec. 8, T. 28 N., R. 34 E.). Large quantities of chipped flint, burned stone, and some bone were found on the surface. It appears to have been a camp site similar to site 22, the surface concentration of cultural material being the result of wind erosion. This site is said to have been a source of artifacts for private collectors. There is a large spring 200 yards southwest of the site.

Site 29

Site 29 is a narrow sandy terrace 30 feet above the river and one and one-quarter miles above Whitestone Bluff on the south side of the Columbia (Sec. 3,

T. 27 N., R. 34 E.). There was some chipped flint on the surface. Two test pits were sunk, yielding a few artifacts and stone chips. The first 20 inches showed a grayish sand mixed with charcoal and burned rocks. Below 20 inches was light yellow sand showing little evidence of human occupation. No burials were found in this vicinity.

Site 30

Site 30 is a small rock shelter (15 feet long, 8 feet high, and 7 feet deep) on a narrow terrace 60 feet above the river on the south bank of the Columbia one and one-half miles above Whitestone Bluff (Sec. 3, T. 27 N., R. 34 E.). The walls are smoke-blackened and on the floor is a shallow deposit (4 inches thick) of flint chips and burned rocks mixed with roof spalls. There are three faded pictographs in red pigment on the walls (comb-shaped design, man on horse, portion of bison). The shelter is too small to have been used to any extent.

Site 31

Site 31 is on the east bank of the Columbia one-quarter of a mile above the Gifford-Inchelium ferry landing (southwest corner of Sec. 33, T. 33 N., R. 37 E.—section marker used as datum). It is an open site at the edge of the high steep river bank. The bank was stripped off from the edge to a line 10 feet back for a distance of 250 feet, and four trenches 10 feet wide and totaling 280 feet in length were dug back from the bank. All of the trenches were carried down to sterile gravel at 60 inches. The deposit above the gravel layer consisted of reddish clay containing charcoal lenses (3-4 inches thick), burned rock fragments, animal bones, flint chips, stone artifacts, and occasional piles of clam shells (Appendix A). Two hearths and an area of burned rocks were found. The occupational layer was neither intense nor differentiated. No house structures were found. Five burials were uncovered. These were pit burials but lacked the stone circles and cedar planks characteristic of pit burials below the mouth of the Spokane. One burial contained a bone awl, the others had no artifacts. This site appears to be an intermittent camp site rather than a permanent village. The location is not suited to a permanent village as the site is at the end of a long flat valley exposed to the strong winds which blow here. The only object of European origin from the site is a copper pendant found on the surface.

Site 33

Site 33 is on a bench on the east side of the river about two miles above (north of) site 31 (Sec. 29, T. 33 N., R. 37 E.). Shell showed on the surface, and a trench was dug parallel to the river. A few artifacts and burned areas were found but there was no indication of extensive occupation.

Site 34

Site 34 is on a high bench on the east side of the river two miles above Daisy (700 yards south of the northwest corner stake of Sec. 5, T. 33 N., R. 37 E.).

Considerable shell and some artifactual material showed on the surface. A trench 100 feet long was dug parallel to the river to a depth of 40 inches. Shell, charcoal, burned rock areas, and other occupational debris were found. The deposit was not perceptibly stratified. No burials were discovered in the vicinity. Artifacts recovered included chipped points, knives and scrapers, point fragments, and a pestle. There were no indications of house structures.

Site 35

Site 35 refers to the pictographs in red pigment on the rocks at the southeast end of Kettle Falls Island (Sec. 14, T. 36 N., R. 37 E.). The island had contained a large number of burials but these were opened by the disinterment project, which removed about a hundred burials from the island and adjacent shores. There was considerable surface indication of occupation on the island, but aside from a few test pits we did no digging here because the soil was too shallow to permit finding deposits of any depth. According to local Indians, the island formerly served as a camp site during the salmon run.

Site 36

Site 36 refers to the petroglyphs on the rocks just above the water 100 yards below Kettle Falls bridge on the west side of the river. The most prominent of these are shown in plate 21. There are also numerous circles and dots.

Site 38

Site 38 is on a low flat one mile below Kettle Falls bridge on the east side of the river (Sec. 23, T. 36 N., R. 37 E.). There was at one time a slaughter house here and the surface has been disturbed. A considerable quantity of shell and chipped points, knives, scrapers, and a pestle were found on the surface. Two trenches and several test pits were dug to a depth of 40 inches but only a few artifacts and flint fragments were found. There was no evidence of extensive habitation.

Site 39

Site 39 is on the west bank of the Columbia about one-quarter mile north of site 40 (southwest corner Sec. 32, T. 34 N., R. 37 E.; 200 yards north of the stake on the river bank marking the north boundary of T. 33 N.). A shell deposit and a depression at first thought to be a pit house were trenched. The shell area was shallow and contained no occupational debris. The depression contained small areas of burned sand and charcoal but nothing else. It was definitely not a house pit. Scrapers, a chipped point, and a pestle were found on the surface.

Site 40

Site 40 is situated on a sand bank high over the river 370 yards north of site 34 (330 yards south of the northwest corner stake of Sec. 5, T. 33 N., R.

37 E.). Shells were scattered on the surface and burned areas showed on the river face of the bank where the sand had caved and washed down. A trench 100 feet long was dug parallel to the river to a depth of 72 inches, where sterile gravel was reached. There were two distinct occupational levels (fig. 8). The first, extending from 36 to 52 inches, consisted of a mix of sand, ash, charcoal, and shell, and contained a few animal bones and burned areas. From 52 to 63 inches was a layer of sterile loose yellow sand. The second occupational level extended from 63 to 72 inches and consisted of a mix of ash, charcoal, shell, and a few bones. There was one area of burned rocks. Artifacts were found from within several inches of the surface to the sterile gravel at 72 inches but were not numerous. They consisted of worked bone and antler, chipped points, knives and scrapers, and pestles. No burials or house structures were found.

Site 41

Site 41 includes two large shell middens on a low flat on the east side of the Columbia about a mile above the head of Ricky Rapids (Sec. 3, T. 35 N., R. 37 E.). A series of trenches was put through the site, revealing that the shell middens extended from the surface to a depth of 24 inches. The middens were about 40 feet in diameter with the heaviest concentration of shell in the center. There was some ash and charcoal mixed with the shells but there were no hearths or burned areas. The only artifact found was a quartzite scraper.

Site 42

Site 42 is on the high bench on the east side of the Columbia 100 yards above the Gifford ferry landing (Sec. 4, T. 32 N., R. 37 E.). There are a number of circular depressions 20 feet across. These were trenched but nothing was found; they were not house pits. Two test pits were dug at the edge of the bank, but except for the finding of a few points and scrapers on the surface and in the pits, there was no evidence of occupation.

Site 43

Site 43 is in the bend of the Columbia on the north side (the river runs from east to west at this point) about two miles above Marcus (Sec. 30, T. 37 N., R. 38 E.). Quantities of shell, burned stone, some bone, and other debris were found on the surface. Four trenches were dug to determine the depth and approximate center of the site. The depth proved to be no more than 12 to 18 inches, and the center of concentration was not determined. Surface material collected included points, scrapers, and a shallow mortar.

Site 44

Site 44 is a low flat on the east side of the Columbia about four miles above Bossburg (Sec. 22, T. 28 N., R. 38 E.). On the surface of the sandy beach below the eroded bank of the flat were found large numbers of chipped stone imple-

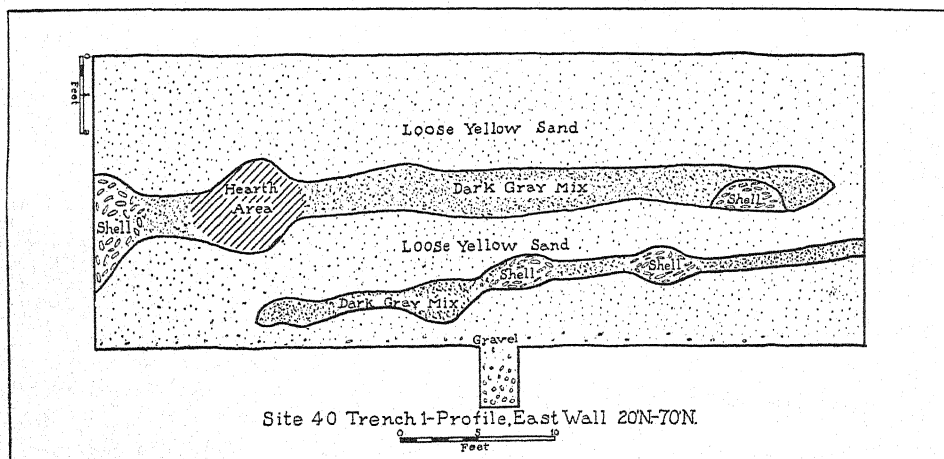


Figure 8. Profile of Trench 1 at Site 40

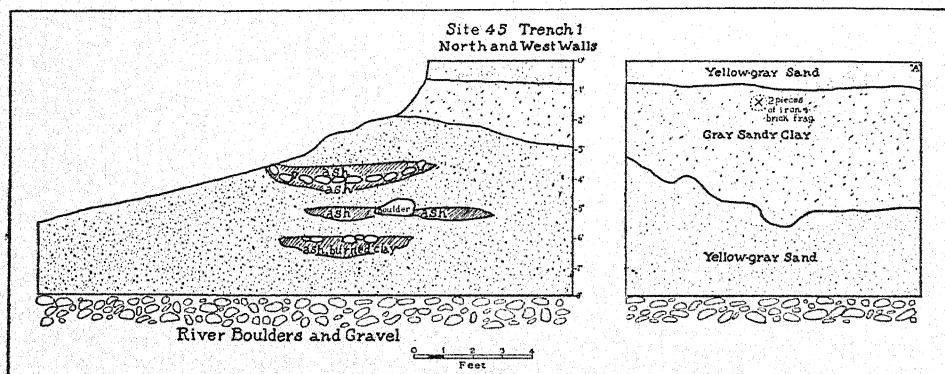


Figure 9. Profile of Trench 1 at Site 45

ments and stone flakes. Most of these were large, crudely chipped projectile points, and scrapers and knives of argillite. There were also some pestles and quartzite scrapers. It was evident that these implements had been washed out of the bank when it was cut away during periods of high water. Twelve test trenches were dug to a depth of 40 to 45 inches on the edge of the bank above the sandy beach where the surface artifacts were found. No evidence of intensive occupation was discovered in these trenches. There were scattered chert chips and a few burned areas. Two quartzite scrapers came from a depth of 10 inches and 12 inches respectively, a chalcedony point and a pestle from 30 inches, and an argillite point from 36 inches. The large number of argillite chips on the beach suggested the presence of a workshop, but almost no argillite chips were found in the trenches. It is possible that the trenches were not carried deep enough to reach the level from which came the large number of washed-out argillite implements, but no such deeper occupation level could be discerned on the bank face.

Site 45

Site 45 is on the flat on the north side of the Columbia (the river runs east and west at this point) opposite Marcus (southwest corner of Sec. 26 and southeast corner of Sec. 27, T. 37 N., R. 37 E.). There is some evidence of occupation along the river bank from the railroad bridge to the mouth of the Kettle River one and one-eighth miles downstream. There are scattered areas of shell on the surface along the bank, and a number of chipped points and other stone artifacts were found along the beach where they had been washed from the bank. Many burials (fifty or more) were removed by the disinterment project from a cemetery 300 yards below (west of) the railroad bridge, and another a mile below the bridge. No further burials were found by us. Test pits at the western end of the site revealed nothing but a few burned areas and shell lenses. Just east of the railroad bridge the bank was cut away for a distance of 50 feet to a depth of 30 inches. At a depth of 12 inches a large area (10 feet in diameter) of burned rocks was uncovered. One chipped point was found at a depth of 12 inches, but nothing else. Two trenches (trenches 1 and 2) were dug at the edge of the bank 200 yards below (west of) the bridge, and a third (trench 3) 50 yards below the first two. These trenches were 10 feet wide and extended 18 feet toward the river from a point 5 feet back from the edge of the bank (fig. 9). The trenches were carried down to the level of river boulders, which were at a depth of 96 inches in trenches 1 and 2, and 60 inches in trench 3. No concentrated deposits of occupational debris comparable to those at sites 11 and 24 were found. Chipped stone implements, flint chips, animal bones, and areas of burned sand and rock were scattered throughout the trenches. The greatest concentration of these in trenches 1 and 2 was from 42 to 72 inches; the artifacts in trench 3 extended only to 60 inches, as the river boulders were closer to the surface here. The vertical distribution is shown in Appendix A. In trench 1, at a depth of 44 inches, was a well-built stone hearth $4\frac{1}{2}$ feet in diameter, filled with ash. It was saucer-shaped, the center being 8 inches lower than the rim (fig. 9; pl. XVIIIe).

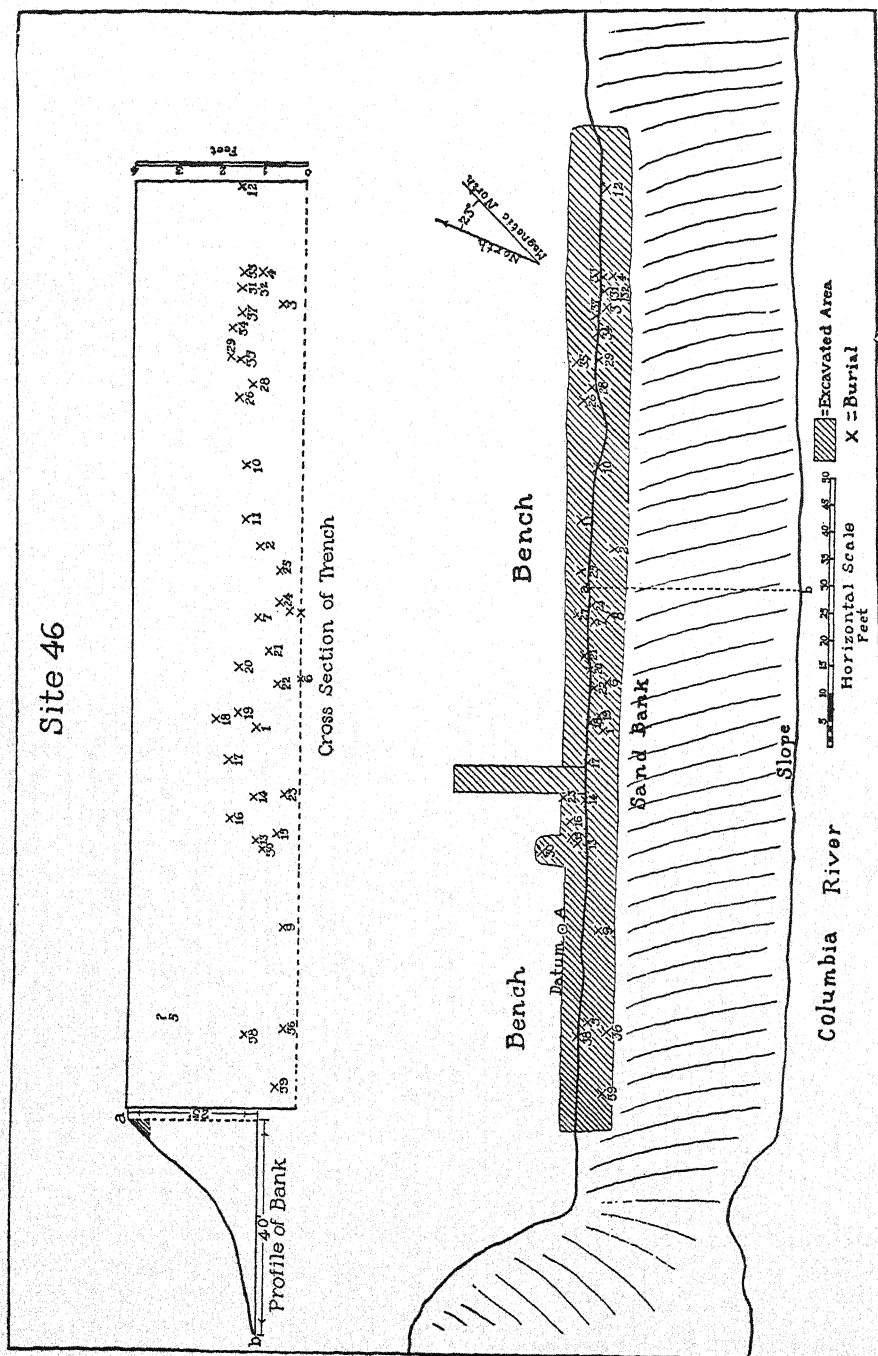


Figure 10. Plan and Profile of Site 46

A foot below this hearth was an area of burned sand and ash. At 72 inches was an area of burned rocks 4 feet in diameter. In trench 2 at 70 inches was found a stone hearth 4 feet in diameter similar to the one found in trench 1, and an area of burned stone was found at 60 inches. At 18 inches in trench 2 was found a circular cache pit 10 inches in diameter and 9 inches deep. The sides were smooth, even, and hard-packed. The pit was sealed with a clay stopper 3 inches thick, of darker color than the surrounding clay. The pit was completely filled with slightly charred pine cones and nuts (*Pinus ponderosa*).³ No evidence of house structures was found. The iron and brick fragments at a depth of 18 inches shown in figure 9 are no doubt from the sawmill which formerly stood 100 yards back from the trench, or from the ranch house established at this point about sixty years ago. The top layer of yellow-gray sand shown in figure 9 was probably deposited during a flood about forty years ago when the whole flat was covered. The extent to which the river can change topography in a short time is evidenced by the fact that it has cut back the bench on the Marcus side more than 70 feet in the past forty years. Except for the iron and brick already mentioned, no objects of European origin were found in the three trenches described above. Evidently the site was occupied intermittently over a long period of time but not very extensively after the period of White contact.

Site 46

Site 46 is situated along the edge of a steep, sandy bank 30 feet above the Columbia on the west bank three-quarters of a mile above the mouth of Sheep Creek (Sec. 29, T. 40 N., R. 40 E.). A trench 20 feet wide and 180 feet long was dug along the edge of the bank (fig. 10). Thirty-nine burials were uncovered in this trench. These were of the pit type and ranged in depth from 24 to 36 inches. There were no burial markers of stone or wood. The bodies were flexed or semi-flexed with heads pointing downstream (south). Artifacts associated with the burials were exceptionally numerous. They consisted of chipped points, knives and scrapers, celts, pestles, pipes, a few shell ornaments, and a large number of bone and antler implements. The only object indicating possible White contact was a copper fragment in burial 2. No house structures or hearths were found. According to a local Indian informant (Mary Augusta) there was formerly an important fishing camp at the mouth of Sheep Creek.

Site 47

Site 47 is at the south end of an island (connected with the mainland by a sand spit at low water) on the west side of the Columbia just north of the mouth of Sheep Creek (Sec. 29, T. 40 N., R. 40 E.). A trench 12 feet wide and 75 feet long was dug along the edge of the sandy bank, exposing ten burials (fig. 11). These were pit burials 36 to 51 inches below the surface. There were no markers of stone or wood. Artifacts associated with the burials were very numerous. There were many bone and antler implements; stone points, knives,

³ It was the practice of the Okanagon to roast pine nuts in the cone in earth ovens. (Cline, *The Sinkaietk or Southern Okanagon of Washington*, pp. 28-29.)

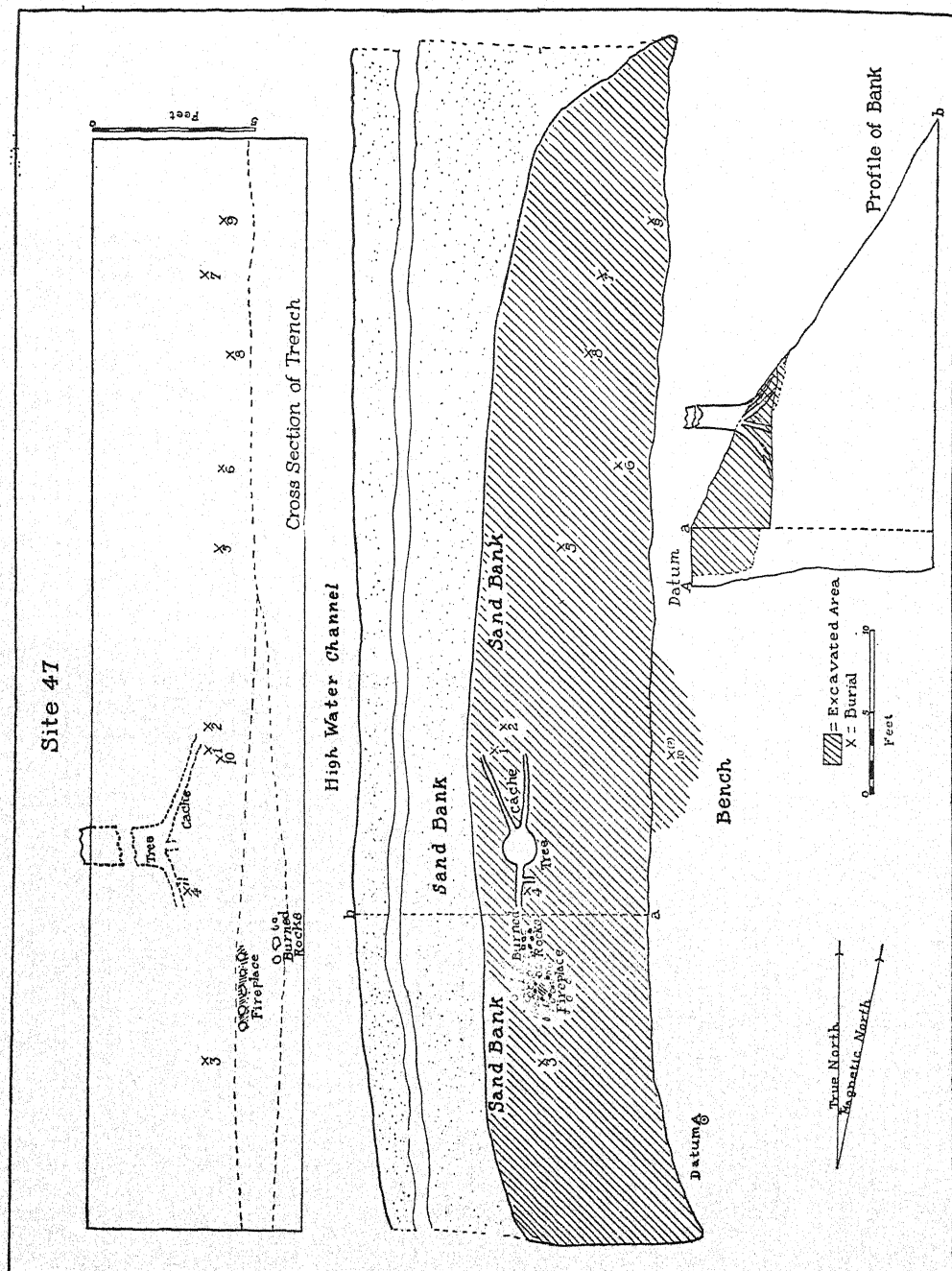


Figure 11. Plan and Profile of Site 47

scrapers, and gravers were numerous; there were a few shell pendants and beads, arrowshaft smoothers, copper beads, and a copper bracelet. In burial 10, that of a child, was a small coiled basket containing a large number of whole and segmented strung dentalium beads, two shell pendants, a turquoise pendant, two glass beads, and a copper disc. The objects of European origin other than those in burial 10 all came from burial 1. A large tubular stone pipe was found in the trench unassociated with any burial. A large yellow pine was growing over burial 4 and the roots had disturbed the skeleton. This tree was felled and proved to be ninety years old. Areas of burned rocks were found at depths of 60 and 72 inches. No house structures were found. Judging from the small quantity of European trade goods in contrast with the great abundance of other artifacts, these burials date from before 1810.

Site 48

Site 48 is on a high knoll at a bend on the east bank of the Spokane River about two miles above Detillion bridge (one-quarter mile west of the southeast corner of Sec. 20, T. 28 N., R. 37 E.). Four pit burials marked by stone circles on the surface and with charred cedar plank enclosures above the bodies were excavated. One of the bodies, that of a child, was in a matted bag wrapped in deer hide, and another of the bodies was wrapped in deer hide. Associated with the burials were large numbers of glass and shell beads, copper pendants and beads, and some fragments of deer hide, elk hide, and buffalo hide.

A rock slide burial containing a child was found 300 feet northwest of the southeast corner of Sec. 20, T. 28 N., R. 37 E. It was marked by a cedar stake projecting from the rocks above the burial. The body was wrapped in buckskin and associated with it were glass beads and a shell bead.

Site 49

Site 49 is on the long flat called Evans Flat on the east side of the Columbia south of Evans (Sec. 21, T. 37 N., R. 38 E.). Near the middle of the flat is a shell area which was trenched. A thin layer of shell 8 inches below the surface was revealed, some of the shells from which had been brought to the surface by plowing. Below the shell was a small amount of charcoal, and sterile yellow sand was reached at 12 inches. No artifacts were found. On the edge of the river bank between two burned tree trunks was found a cache of forty-four argillite points and knives. The cache extended from the surface to a depth of 8 inches. Trenches at the south end of the flat revealed nothing but a few fragments of burned rock. At the north end of the flat a gold dredger had stripped off the top 3 feet of soil, exposing six different areas of burned rocks, each about 3 feet in diameter.

Site 50

Site 50 is on the second bench above the Spokane River one-quarter mile above its mouth on the north side (Sec. 11, T. 28 N., R. 36 E.). Some burials had been exposed by the high water backed up by Coulee Dam. Four burials

were excavated. All the bodies were extended and there was no consistent orientation. These were pit burials lacking any markers. Shell beads and rings were associated with two of the burials.

Site 51

Site 51 is on a high spur about three-quarters of a mile below site 8 on the north side of the Spokane River. A number of burials here had been removed by the disinterment project. We excavated two burials. They were of the pit type sunk in sand but lacking rock circle markers. There was an enclosure of pine stakes over one of the bodies, 18 inches below the surface. Associated with these burials were shell beads and pendants, copper beads, copper pendants, a copper thimble and button, two iron axes, fragments of hide, and a portion of a twined bag. These burials apparently were quite recent.

HABITATION STRUCTURES, HEARTHES, AND EARTH OVENS

PIT HOUSES

Because of the probability that there was a shift from pit houses to surface mat houses among the Interior Salish toward the end of the eighteenth century,¹ intensive efforts were made to locate pit house remains which would throw light on this problem. Although a large number of saucer-like depressions were tested along the Columbia River and the lower Spokane, none of these proved to be a pit house. No evidence of pit houses was found at sites 11, 24, 31, and 45, which were the habitation sites with deepest and most extensive cultural deposits, and all of which, in their lower levels at least, date from a period considerably before 1800. Only at site 23, one-half mile above Hellgate Rapids, was there the slightest indication of the existence of pit houses. Here there were several saucer-like depressions 15 to 20 feet in diameter. A test pit in one of the larger of these showed burned stone, charcoal and a deer carpal. Other test pits revealed no occupational debris. The rising water back of Coulee Dam prevented further investigation of this site. Depressions along the Columbia below the mouth of the Sanpoil River which may have been the remains of pit houses were reported to us but they were already covered with water. Since there is considerable ethnological evidence indicating the use of the pit house in our area, this failure to find any evidence of pit houses is surprising and puzzling. The problem will be discussed further in the general conclusions.

HEARTHES

The only evidence found concerning structures associated with habitation sites pertains to hearths and earth ovens. We apply the term "hearth" only to more or less circular areas of carefully laid river cobbles, about three feet in diameter, which are saucer-like in section and filled with charcoal and ashes, and not to areas of scattered burned rocks and charcoal. The hearth form is shown in figure 9 and plate XVIIIe. Hearths of this type were found as follows:

Site 11, trench 2—1

Site 24, trench 1—1

Site 31 —1 stone hearth,
 1 clay hearth lacking
 stones

Site 45, trench 1—1 at 44 inches
 (fig. 9; pl. XVIIIe)
 trench 2—1 at 70 inches

EARTH OVENS

Numerous areas of burned and split rocks were found. These were 3 to 10 feet in diameter and 3 to 8 inches thick. They were usually as high as or higher

¹ The question is discussed by Strong in *Archaeology of the Dalles-Deschutes Region*, pp. 38-39.

in the center than on the peripheries, in contrast to the hearths. Their distribution was as follows:

Site 11, trench 1—1
 trench 4—2
 Site 24, trench 4—2
 Site 31 —1
 Site 34 —1
 Site 40 —1

Site 45, trench 1—1 at 72 inches
 trench 2—1 at 60 inches, and
 2 at 24 inches in test
 trench north of the
 main trenched area

Site 47 —1 at 60 inches
 1 at 72 inches

Site 49 —6 at 36 inches (exposed
 by gold dredger)

These burned rock areas do not appear to be hearths or fireplaces, and it is believed they are the remains of earth ovens. Extensive use of earth ovens for cooking camas and other foods is reported for the region.² We observed the process of cooking camas in an earth oven at the house of Rosie Seymour, 84-year-old Okanagon-Lakes woman living at Kelly Hill in the hills north of Kettle Falls. A pit 4 feet square and 10 inches deep was dug. The pit was covered with timbers and rocks were piled on top of the timbers. The timbers were fired, and when they had burned down and the rocks had fallen into the pit, the latter were levelled and covered with green tule. The six sacks of camas were placed on the tule and covered with tule and damp grass, then with a layer of earth, and finally with a carefully laid layer of sod. Over the resulting mound was piled wood, which was in turn covered with green willow branches and leaves to prevent rapid combustion. The top fire was kept going nearly forty-eight hours and then the camas bulbs were removed. The remaining pile of burned and cracked stones resembled precisely the burned rock areas described above. Mrs. Seymour stated that in her childhood her mother had roasted as many as fifty sacks of camas at one time in a large pit.

² Ray, *Sanpoil and Nespelem*, p. 106; Cline, *Southern Okanagon*, pp. 26-28.

DISPOSAL OF THE DEAD

A total of 150 burials was found. These fall into two types. The first and most prevalent type, which we call pit burials, consists of inhumations in sand or gravel near the river banks. The second, called rock slide burials, consists of inhumations in talus slopes along the base of cliffs usually near the rivers. The distribution of burials by sites, as well as the descriptive data pertaining to them, is shown in table 2. No evidence of cremation burials was found.

PIT BURIALS

A total of 134 pit burials was found at sites 2, 7A, 7B, 24, 31, 46, 47, 48, and 51. Large numbers of disturbed pit burials were observed at site 7A, along the lower Spokane River, in the vicinity of Kettle Falls and on Kettle Falls Island, and on the lower end of site 45. Some of these had been opened at various times by relic hunters but the majority of them were removed in the fall of 1939 by the disinterment project under contract with the Reclamation Service. This work was done in such a manner as recklessly to destroy the archaeological evidence. Several hundred burials were removed in this way.

Characteristically, these pit burials are found on the edges of the low sandy benches along the Columbia River. Generally the burials are grouped close together in an area running along the bank for 100 feet or so and back from the bank about 10 feet. They are $1\frac{1}{2}$ to 4 feet below the surface. Of those whose positions could be determined, 72 were flexed, 38 semi-flexed, and 9 extended. These proportions do not vary significantly from site to site, except that the four burials at site 50 were all extended. Site 50 was further atypical in that the orientation was not consistent. With the exception of sites 2, 7B, 48, and 50, orientation at a single site is consistent, with the body parallel to the river and head downstream.

The bodies in three of the pit burials were wrapped in deer hide. These were two child burials at site 48 and an adult burial at site 51. One child was first placed in a matted bag and then wrapped in hide. The deer hide around the other child was sewed in place with sinew.

PIT BURIAL MARKERS

At sites 2, 7A, 24, and 48, from the Spokane River westward, most of the burials were marked on the surface with stone circles (pl. XXc). These consisted of a circular pile of river cobbles 5 to 7 feet in diameter, one layer thick, although occasionally piled up somewhat at the center. Most of the graves so marked had a circular or oval enclosure of cedar planks placed vertically above the body (pl. XX a-b). The excavation sequence was as follows: Below the stone circle at the surface were 2 to 10 inches of clean, unburned sand or earth. Next came the upright planks 3 to 12 inches long and

charred at the upper ends. Separating the bottom of the planks from the burial below were 8 to 10 inches of unburned earth or sand. Evidently the body was covered with earth to the depth of about 2 feet, the planks were driven in to a depth of about a foot, and set afire. They burned to the earth level over the burial. Later the filling of the burial pit was completed with unburned earth or sand, and the fill was covered with the circle of stones. The planks, some of which are several inches thick and six inches wide, probably came from drift wood, as no cedar grows near the Columbia south of the mouth of the Spokane River. The distribution of stone markers and cedar planks in pit burials is shown in table 1.

TABLE 1
DISTRIBUTION OF STONE MARKERS AND PLANK ENCLOSURES IN PIT BURIALS

Site	No. of burials with stone circles & planks	No. of burials with stone circles only	No. of burials with planks only	Total	Total no. of burials at site
2	2	2	2	6	11
7A.....	4	2	0	6	8
24	14	3	11	28	38
48	3	0	0	3	5
Total.....	23	7	13	43	62

The correlation between stone markers and planks is probably higher than shown in table 1. Site 2 is at the Keller's ferry landing, and the surface has been disturbed by being used for a camp and picnic ground. It is highly probable that some of the stone circles have been removed. There has been some surface disturbance at site 24 also. The matrix at site 7A is porous gravel, and some of the planks may have decomposed beyond recognition.

No stone circles or cedar planks were found associated with burials north of the mouth of the Spokane River.

ROCK SLIDE BURIALS

A total of sixteen rock slide burials was found at sites 5, 8, 13, and 48. There were several disturbed rock slide burials at site 5, about twenty at site 8, fifteen or twenty at site 13, and a number about a mile above the mouth of the Spokane River. Most of the disturbed burials at site 8 were removed by the disinterment project. Rock slide burials were made by excavating a pit 2 to 4 feet deep in a talus slope, placing the body in the pit, and covering it with rocks. These graves were usually a few feet apart along the bottom of the talus slope. Orientation was consistent, with head downstream. Of those whose position could be determined, fourteen were flexed, one was semi-flexed, and

one was extended. Most of these burials were marked by upright cedar stakes projecting above the rocks (pl. XXd).

No rock slide burials were found north of the mouth of the Spokane River. Since no suitable talus slopes exist near the Columbia north of the Spokane, the absence of rock slide burials is probably the result of environmental conditions rather than a difference in burial practices.

ARTIFACTS ASSOCIATED WITH BURIALS

Numerous artifacts and worked materials were associated with 90 of the 150 burials found. These are listed in table 2. Richest in artifacts were the burials at sites 24, 46, and 47. All the copper articles, articles of hide, glass beads, and basketry, and nearly all of the worked bone, shell beads and pendants, and celts came from burials. Except for the uneven site distribution of European trade articles, the associated artifacts do not indicate any geographic or stratigraphic difference of significance. European trade articles (glass beads, trade copper, and iron objects) were associated with burials at sites 2, 7A, 7B, 8, 24, 29, 31, 46 (one copper fragment only), 47, 48, and 51, and were most abundant at sites 8, 24, 48, and 51. It has already been pointed out (p. 26) that the burials at site 24 were intrusive into the lower part of the midden, which contained no evidence of White contact. It may be inferred that burials containing European trade objects in any abundance are post-1800, and those with large amounts (i.e., at sites 8, 24, 48, and 51) are probably post-1820 (beginning of intensive fur trade on the upper Columbia). From the general condition of the burials at sites 8, 48, and 51 we believe that these are more recent than 1820, and possibly not more than fifty to sixty years old. It will be noted that there is no significant correlation between burial type and presence or absence of European trade objects, since the burials at sites 8 and 48 (one burial) were of the rock slide type, while those at sites 2, 7A, 7B, 24, 29, 31, 47, 48, and 51 were of the sand pit type (cf. table 13). The rock slide burials at sites 5 and 13 contained no European trade objects. Of the sites containing the greatest number of European trade objects, one (8) was a rock slide cemetery, and three (24, 48, 51) were sand pit cemeteries (with the exception of the single rock slide burial at 48).

SKELETAL MATERIAL

Skeletal material was recovered from 89 burials, as shown in table 2. The bones in the other 61 burials excavated were too decomposed to be saved. No measurements have yet been made on this material, which is deposited in the Eastern Washington State Historical Society Museum in Spokane, Washington.

SUMMARY AND COMPARISONS

Two types of burials are found in the upper Columbia region, namely, sand pit burials and rock slide burials. The former far outnumber the latter. Bodies are generally flexed, although a few extended burials are found. Burial orientation is generally consistent, the body being placed parallel to the river with head downstream. Along the Columbia from Keller ferry to the lower Spokane, sand pit burials are associated with circular stone surface markers and charred cedar stake enclosures above the body. These two features are not found along the Columbia north of the mouth of the Spokane. Rock slide burials, which are found from the lower Spokane to Keller's ferry (and farther down the river) are generally marked with cedar stakes projecting from the rocks above the burial. Both types of burial were practiced before White contact (*ca.* 1800), and afterward until very recently. No evidence of cremation was found.

The archaeological data confirm, on the whole, the ethnological information for our region on burial practices, which has been summarized by Ray.¹ Inhumation in talus slopes and in sand, gravel, or earth is reported for the Sanpoil, Nespelem, Spokane, Southern Okanagon, and Lakes. Wooden stakes or piles of rocks as grave markers are reported to have been in use in recent times in our region. Flexed burials are reported to be general, and the practice of cremation absent.

Archaeologically, the upper Columbia shows both similarities to and differences from other parts of the Plateau. Although in recent times the Thompson Indians disposed of the dead above ground in wooden boxes or structures and practiced some cremation,² according to tradition and the archaeological evidence from Lytton and Kamloops,³ the earlier practice was inhumation in sand or gravel and in rock slides. The rock slide burials in that region were marked with upright branches or stakes, while the sand pit burials were marked with wooden posts, or slabs of wood or stone. Bodies were flexed. Along the Columbia in Grant County, Washington, Krieger⁴ found rock slide burials, inhumations in knolls of volcanic ash, and cremations. In the Yakima Valley, Smith⁵ found rock slide burials, inhumations in knolls of volcanic ash marked by circles of river cobbles or basalt fragments, and rings of stones containing cremation burials. In the first two types the bodies were flexed. In the Dalles-Deschutes region⁶ were found rock slide burials with split cedar plank markers, sand pit burials marked with piles of basalt fragments and sometimes lined with boards, and cremation burials. Bodies were flexed. Along the Snake River in Nez Percé territory, Spinden⁷ reports finding rock slide burials, and inhumations in sand or earth marked by piles of stone and upright cedar stakes. Bodies were either flexed or extended. Along the middle Columbia Perry⁸ found a "cedar ring" burial type with body flexed and without surface markers. Unlike our cedar enclosure, the "cedar ring" is placed around the body rather than above it and the planks are uncharred.

¹ *Cultural Relations in the Plateau of Northwestern America*, pp. 61-67, table 1.

² Teit, *Thompson Indians of British Columbia*, pp. 327-336.

³ Smith, *Archaeology of the Thompson River Region*, pp. 402-407, 431-432.

⁴ *Prehistoric Pit House Village Site*, pp. 9-10.

⁵ *Archaeology of the Yakima Valley*, pp. 138-142.

⁶ Strong, *Archaeology of the Dalles-Deschutes Region*, pp. 43-50.

TABLE 2
DISTRIBUTION AND DESCRIPTION OF BURIALS

Site	Burial Number	Depth	Type	Special Features *	Position	Orientation	Age	Bones Saved †	Associated Artifacts
2	1	17"	Sand pit	Stone circle	Flexed	SW, face	Adult	+	None
	2	17"	Sand pit	Stone circle	?	W, L. side	Adult	Skull only	Shell pendant, hammerstone, NAb ₁ .
	3	32"	Sand pit	None	Flexed	NW, back	Child	+	None
	5	26"	Sand pit	Cedar planks Stone circle	Flexed	SW, back	Adult	-	None
	7	18"	Sand pit	Cedar planks	Extended	NW, back	Child	-	Bone awl
	8	24"	Sand pit	None	Flexed	SW, back	Adolescent	+	None
	9	51"	Sand pit	Cedar planks	Flexed	W, L. side	Adult	-	2 pestles, maul, 3 gravers, 3 flake knives, 1-NBb ₂
	10	32"	Sand pit	Cedar planks Stone circle	Extended, Legs flexed	W, back	Adult	-	Abalone pendant, copper fragment, 1-NAb ₁ .
	11	15"	Sand pit	None	Flexed	E, back	Infant	+	None
	12	34"	Sand pit	None	Semi-flexed	W, back	Child	-	Cache of unworked flint flakes, copper bead, whale bone club, 5 dentalium beads, 1-SCa ₂ .
5	13	22"	Sand pit	None	Flexed	W, back	Adult	+	None
	1	30"	Rock slide	Cedar post	?	?	Child	-	None
7A	2	30"	Rock slide	Cedar post	?	?	Child	-	None
	1	26"	Gravel pit	Stone circle	Flexed	W, L. side	Adult	+	None
	2	30"	Gravel pit	Cedar planks Stone circle	Flexed	W, L. side	Adult	+	None

* Stone circle = stone circle marker on surface; Cedar planks = charred cedar plank enclosure over body; Cedar post = cedar post projecting from rocks above burial.

† + = skeleton saved; - = no bones saved because too decomposed.

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
7A	3	32"	Gravel pit	Cedar planks Stone circle	Semi-flexed	W, back	Adult	+	Bone arrow point, copper pendant, turquoise fragment, 2 disc shell beads, 6 dentalium beads, beaver tooth dice, bone pendant, 2 bone awls.
	4	30"	Gravel pit	Stone circle	Flexed	W, ?	Child	—	33 glass beads, shell pendant, 18 copper beads, 453 dentalium beads strung with copper beads, incised dentalium bead, copper pendant, copper bracelet, 13 olivella beads.
	5	52"	Sand pit	Cedar planks Stone circle	Flexed	W, back	Adult	+	19 dentalium beads strung with dentalium segments, 3 iron fragments.
	7	32"	Gravel pit	Cedar planks Stone circle	Semi-flexed	W, back	Adult	—	None
	8	?	Sand pit	None	?	? ?	?	+	8 olivella beads, 12 elk teeth, side scraper.
	9	?	Sand pit	None	?	? ?	?	+	2 hammerstones, 2 side scrapers.
	1	34"	Sand and gravel pit	None	Flexed	S, L. side	Child	—	None
	2	36"	Sand and gravel pit	None	Semi-flexed	E, back	Adult	—	Hammerstone
	3	36"	Sand and gravel pit	None	Semi-flexed	E, back	Child	+	None
7B	4	32"	Sand and gravel pit	None	Flexed, arms extended	W, R. side	Child	—	None

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
8	4	26"	Rock slide	None	Flexed	SW, face	Adult	+	Bone bodkin, bone awl.
	5	30"	Rock slide	None	Flexed	? ?	Child	+	None
	6	35"	Rock slide	None	Flexed	? ?	Adult	+	Pestle.
	7	38"	Rock slide	None	Extended	? ?	Adult	+	Worked bone fragment.
	8	46"	Rock slide	None	?	? ?	Adult	Mandible only	Mineral pigment.
	9	48"	Rock slide	None	?	? ?	Child	Skull only	Turgite fragment, 23 elk teeth.
	10	32"	Rock slide	None	Flexed	SW, ?	Adult	Skull only	None
	11	18"	Rock slide	None	Flexed	SW, L. side	Adult	+	Deer hide fragment, iron object, 198 copper beads, 14 ollivella beads.
	12	48"	Rock slide	None	?	? ?	Child	—	None
	13	24"	Rock slide	Cedar post	Flexed	S, R. side	Adolescent	Skull only	6 elk teeth, 4 fragments of coiled basket.
	24	39"	Sand and gravel pit	Cedar planks Stone circle	Flexed	NW, back	Adult	+	Hammerstone, incised bone tube bead, worked bone fragment. 1-SAa.
	2	28"	Sand and gravel pit	Cedar planks	Semi-flexed	NW, back	Adult	+	14 shell disc beads, maul, iron fragment, 14 dentalium segments, 24 copper beads, 45 dentalium beads.
	3	34"	Sand and gravel pit	None	Semi-flexed	E, R. side	Adult	+	Twined basketry fragment, copper button, glass bead, 2 dentalium beads.
	4	27"	Sand and gravel pit	Cedar planks	Flexed	W, L. side	Adult	+	Sewn matting fragment, 6 whole dentalia, 3 copper beads, copper pendant.

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
24	5	26"	Sand and gravel pit	Cedar planks	Flexed	SW, back	Adult	+	Diorite maul, 3 bear penis bones, 28 dentalium segments.
	6	34"	Sand and gravel pit	Cedar planks	Semi-flexed	W, L. side	Child	+	7 woodpecker beaks, awl, bone needle, 396 dentalium beads, 2 copper beads, 1-SBa.
	6B	30"	Sand and gravel pit	None	Semi-flexed	E, back	Infant	+	None
	9	24"	Sand and gravel pit	None	?	E, back	Infant	-	Side scraper.
	10	37"	Sand and gravel pit	Cedar planks	Semi-flexed	W, back	Adult	+	Worked bone fragment, 3 muskrat teeth, 4 awls, bone bodkin, red ochre fragment.
	11	36"	Sand and gravel pit	Cedar planks	Flexed	W, L. side	Infant	+	Copper bracelet, maul, 52 dentalium segments, 67 elk teeth, 2 shell pendants, 3 copper pendants.
	12	21"	Sand and gravel pit	None	Flexed	W, back	Adult	+	Matted fibers, anthophyllite celt, 2 bone awls.
	13	36"	Sand and gravel pit	Cedar planks Stone circle	Semi-flexed	W, back	Adult	+	2 copper pendants, dog skull, 28 dentalium segments, 40 olive beads.
	15	30"	Sand and gravel pit	Cedar planks Stone circle	?	? ?	Child	-	15 bear claws, 4 dentalium segments, tubular bone bead, shell pendant, abalone pendant, 4 glass beads.

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
24	16	22"	Sand and gravel pit	Cedar planks Stone circle	Flexed	W, L. side	Adult	+	66 dentalium segments, mineral pigment, 4 perforated bear claws, flake knife.
	17	36"	Sand and gravel pit	Cedar planks Stone circle	Semi-flexed	W, R. side	Infant	+	Worked bone fragment, skin pouch and cap, buffalo hide fragment, notched sinker, 380 glass beads, hide bag containing 5 decorated sticks, 327 copper beads, 78 dentalium segments, red ochre fragment, flake knife.
	17A	12"	Sand and gravel pit	None	Semi-flexed	? ?	Adult	-	None
18		28"	Sand and gravel pit	Cedar planks	Flexed	W, back	Adult	+	380 glass beads, 184 dentalium segments, 172 copper beads, digging stick handle, string of 55 copper beads.
	19	28"	Sand and gravel pit	Cedar planks	Semi-flexed	E, R. side	Child	+	201 olivella beads, 1-NAa, 1-NAb.
20		22"	Sand and gravel pit	None	Flexed	W, R. side	Infant	+	9 whole dentalia.
21		38"	Sand and gravel pit	Cedar planks	Flexed	W, back	Child	+	Twined basketry fragment, buckskin fragment, 118 copper beads, 3 copper pendants, copper button, 6187 glass beads, iron sword blade, segment of rifle or pistol barrel, 1045 dentalium beads, 3 antler digging stick handles, 2 toy wooden boats, 3 beaver-tooth dice.

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
24	21A	37"	Sand and gravel pit	In pit with No. 21	Semi-flexed	W, R. side	Infant	—	None
	22	30"	Sand and gravel pit	Cedar planks Stone circle	Flexed	ENE, R. side	Adult	+	Iron fragment, 5 olivella beads, 1-SAa.
	23	27"	Sand and gravel pit	None	Semi-flexed	W, back	Infant	+	15 olivella beads, 26 glass beads, 6 copper beads, 3 beaver tooth dice, 3 copper pendants.
	25	48"	Sand and gravel pit	Cedar planks Stone circle	Arms extended, knees up	W, back	Adult	+	Red ochre fragment, shell pendant, 80 elk teeth, bone arrow point, 3 bone beads, 3 copper bells, 53 whole dentalia, 5 beaver teeth.
	26	32"	Sand and gravel pit	Cedar planks Stone circle	Flexed knees up	SW, back	Child	+	None
	27	22"	Sand and gravel pit	Stone circle	Semi-flexed	W, back	Adult	+	16 dentalium beads.
	28	21"	Sand and gravel pit	Stone circle	Flexed	W, R. side	Adult	+	None
	29	34"	Sand and gravel pit	Cedar planks Stone circle	Flexed	WNW, R. side	Adult	+	267 dentalium beads, 1950 glass beads.
	30	18"	Sand and gravel pit	Cedar planks Stone circle	Flexed	W, L. side	Child	+	2 olivella beads.
	31	21"	Sand and gravel pit	Cedar planks Stone circle	Flexed	W, R. side	Adult	+	None
	32	33"	Sand and gravel pit	Cedar planks Stone circle	Semi-flexed	W, ?	Infant	—	None

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
24	34	29"	Sand and gravel pit	Cedar planks Stone circle	Flexed	W, L. side	Adult	+	None
	35	27"	Sand and gravel pit	Cedar planks	Flexed	NW, L. side	Adult	+	Bone awl, 11 worked bone fragments, 4 beaver tooth fragments, graver, end scraper, flake knife, antler wedge, bone arrow point, bear penis bone, bone harpoon point, bone spear point, 2 arrowshaft smoothers, 1-NAa, 3 worked bone fragments.
	36	20"	Sand and gravel pit	Cedar planks	Flexed	NW, L. side	Adult	Skull missing	None
	37	41"	Sand and gravel pit	Directly under No. 28	Flexed	W, back	Adult	+	None
	38	35"	Sand and gravel pit	Cedar planks Stone circle	Flexed	W, R. side	Child	+	None
	39	42"	Sand and gravel pit	Probably intrusive through head of No. 36	Semi-flexed	W, R. side	Adult	+	None
	40	36"	Sand and gravel pit	Stone circle	Semi-flexed	E, back	Child	+	None
	1	42"	Sand pit	None	Flexed	E, L. side	?	+	Bone awl.
31	2	16"	Sand pit	None	Semi-flexed	E, back	Adult	+	None
	3	36"	Sand pit	None	Flexed	E, L. side	?	+	None
	4	32"	Sand pit	None	Flexed	SE, back	Child	+	None
	5	32"	Sand pit	None	Flexed	SE, L. side	Adult	+	None

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
46	1	36"	Sand pit	None	Semi-flexed	SW, L. side	Adult	—	None
	2	36"	Sand pit	None	Semi-flexed	SW, L. side	Adult	+	Anthophyllite knife, bone awl, copper pendant, 2 bone spatulates, bone flesher, 3 unworked bone fragments.
	3	42"	Sand pit	None	Flexed	SW, L. side	Child	—	None
	4	36"	Sand pit	None	Flexed	SW, L. side	Child	—	None
	5	?	Sand pit	None	Flexed	SW, ?	?	—	Worked bone fragment, 2 worked antler fragments, bone harpoon point, bone spear point, bone arrow point, 2 bone spatulates.
	6	48"	Sand pit	None	Flexed	SW, L. side	Adult	—	None
	7	36"	Sand pit	None	Flexed	SW, R. side	Adult	Skull and femur	Tubular pipe, quartzite scraper
	8	48"	Sand pit	None	Flexed	SW, L. side	Adult	+	2 worked bone fragments, 6 unworked deer bones.
	9	44"	Sand pit	None	Extended	SW, back	Adult	—	None
	10	32"	Sand pit	None	Semi-flexed	SW, L. side	Adult	—	Bear penis bone, 1-NAbs.
	11	32"	Sand pit	None	Flexed	SW, R. side	Adult	Skull and mandible	None
	12	30"	Sand pit	None	Flexed	SW, R. side	Adult	—	Quartzite scraper
	13	36"	Sand pit	None	Flexed	SW, L. side	Adult	+	None
	14	35"	Sand pit	None	Flexed	SW, R. side	Adult	+	2 flakers.

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
46	15	42"	Sand pit	None	?	?	Adult	—	None
	16	28"	Sand pit	None	Flexed	SW, L. side	?	—	7 awls.
	17	32"	Sand pit	None	Flexed	SW, back	?	—	2 bone harpoon points, harpoon collar fragment, 2 antler flakers, bone tube, 3 antler digging stick tips, worked bone fragment, 4 worked antler fragments, triangular antrophyllite knife, awl, 5 bone spatulates, 2 bone arrow points.
	18	24"	Sand pit	None	Flexed	SW, L. side	Child	—	None
	19	30"	Sand pit	None	Flexed	SW, R. side	Child	—	None
	20	30"	Sand pit	None	Flexed	SW, face	Adult	—	Flake knife, quartzite scraper.
	21	39"	Sand pit	None	Flexed	SW, L. side	Adult	+	Quartzite scraper.
	22	42"	Sand pit	None	Semi-flexed	SW, R. side	Adult	+	Tubular pipe fragment, bone bead, digging stick handle, antler flaker, 2 small pestle-shaped stones, slate needle, slate pendant.
	23	44"	Sand pit	Circle of rocks 8" above skull	Semi-flexed	SW, R. side	Adult	+	2 bone harpoon points, bone digging stick, 2 beaver teeth, 10 bone arrow points, bone spear point, 2 spatulates, digging stick tip, 4 worked bone fragments, double pointed bone object, bone arrow point, worked bone fragment, 2 bone awls, 2 toy mauls, graver, tubular pipe, end scraper, 1—NAb ₂ .

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
46	24	42"	Sand pit	None	Semi-flexed	SW, L. side	Adult	+	2 gravers, 3 end scrapers, 2 red ochre fragments, 3 bone awls, horn digging stick tip, digging stick handle, 6 worked bone fragments, bone spear point, 3 worked antler fragments, 7 spatulates, 2 flakers, slate needle, 5 beaver teeth, tubular pipe fragment, 6 dentalium beads, arrowshaft smoother, 2 shell pendants, bear tooth, 9 bone arrow points, 2 hematite-chalcedony mixture fragments, 1-NAb _a , 1-NAb _i , 2-SCb _a , 1-SCb _i , 1-NBa, 1-NBb _i .
	25	42"	Sand pit	None	Flexed	SW, R. side	Adult	—	None
	26	30"	Sand pit	None	Flexed	SW, R. side	Adult	Skull and mandible	None
	27	45"	Sand pit	None	Flexed	SW, R. side	Adult	Skull only	2 worked antler fragments.
	28	34"	Sand pit	None	Flexed	SW, L. side	Adult	—	Flake knife, triangular antioch phyllite knife, 1-NAb _i .
	29	27"	Sand pit	None	Semi-flexed	S, L. side	Adult	—	2 worked bone fragments, 1-SBa.
	30	38"	Sand pit	None	Flexed	SW, R. side	Adult	Skull	None
	31	31"	Sand pit	None	?	SW, L. side	Adult	—	None
	32	31"	Sand pit	None	?	SW, L. side	Adult	—	Bird bone tube.
	33	31"	Sand pit	None	Flexed	SW, ?	?	—	3 quartzite scrapers, 1-NAb _i .

TABLE 2—Continued

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
47	4	36"	Sand pit	None	Flexed	S, back	Adult	+	Anthrophyllite celt.
	5	47"	Sand pit	None	Extended	S, back	?	-	2 unworked beaver teeth.
	6	48"	Sand pit	None	?	S, ?	Child	-	3 olivella beads.
	7	42"	Sand pit	None	Semi-flexed	S, back	Child	-	None
	8	51"	Sand pit	None	?	S, ?	Adult	-	4 cougar claws, unworked beaver tooth fragment, bone whistle fragment, carved bone ornament.
	9	48"	Sand pit	None	Flexed	E, L. side	Adolescent	-	Flake knife, olivella bead, 2 worked antler fragments, 1-NAB ₂ .
	10	40"	Sand pit	None	?	? ?	Child	-	Turquoise pendant, circular copper object, 2 glass beads, 2 shell pendants, whole and segmented dentalium beads—all in coiled basket.
	1	20"	Sand pit	None	Semi-flexed	NE, back	Adult	-	None
48	2	40"	Sand pit	Cedar planks Stone circle	Semi-flexed	S, R. side	Adult	+	57 dentalium beads, buffalo hide fragments, 8 disc shell beads, matted bag fragments, 11 glass beads, 2 olivella beads, 32 elk teeth, 3 copper pendants, 270 copper beads.
	4	21"	Sand pit	Stone circle Sewn tightly in buckskin	Flexed	S, R. side	Child	+	Fringed buckskin fragment, 4 buffalo hide fragments, elk hide fragment, deer hide around matted bag, 3 copper pendants, 158 copper beads.

TABLE 2—(Concluded)

Site	Burial Number	Depth	Type	Special Features	Position	Orientation	Age	Bones Saved	Associated Artifacts
48	5	15"	Sand pit	Cedar planks Stone circle	Flexed	SW, ?	Child	+	202 glass beads, matted fiber fragment, copper knife-like ornament, 58 copper beads, body wrapped in deer hide.
	6	24"	Rock slide	Cedar post	?	? ?	Infant	—	50 glass beads, disc shell bead.
	1	Washed out	Sand pit	None	Extended	SE, back	Adult	All except skull	None
50	2	Washed out	Sand pit	Mixed with No. 3	Extended	SW, face	Adult	Skull, mandible	27 olivella beads, 56 disc shell beads.
	3	Washed out	Sand pit	None	Extended	SW, back	Adult	+	3 shell rings, 2 olivella beads, 53 disc shell beads.
	4	Washed out	Sand pit	None	Extended	S, back	Adult	—	None
51	1	48"	Sand pit	None	?	? ?	Child	—	5 copper pendants, shell pendant, 206 dentalium beads, 50 copper beads, iron axe, copper thimble, copper button.
	2	48"	Sand pit	Pine stake enclosure over body, not charred	Semi-flexed	SW, R. side	Adult	+	String of copper and 50 dentalium beads, 2 copper pendants, deer hide fragment, twined bag fragment, rawhide fragment, iron axe.

MATERIAL CULTURE

In the following pages is a description of the artifacts found, classified according to materials. The number of specimens of the various materials is as follows:

Chipped stone	1,134
Ground stone	137
Mineral pigment	11
Bone and horn.....	255
Animal teeth	272
Animal claws.....	15
Shell (including 5,971 beads).....	5,992
Wood (not including grave markers).....	7
Copper (including 1,253 beads).....	1,302
Iron	22
Glass (beads)	8,928
TOTAL.....	18,075

CHIPPED STONE

Chipped stone objects comprise the most numerous class of artifacts in the upper Columbia region. More than one-half of all specimens found, exclusive of shell, copper and glass beads, belong to this class. The class contains a variety of types, such as arrow and spear points, chipped knives, flake knives and scrapers, drills, gravers, crude core scrapers, quartzite hide-scrapers, and notched stone sinkers. The number of these specimens is as follows:

Arrowpoints, spearheads, and/or knives.....	284
Drills, gravers, knives, scrapers, flakers.....	367
Quartzite scrapers	476
Notched sinkers	6
Unidentified object	1
TOTAL.....	1,134

These implements vary widely in care and skill of workmanship. Most of the arrow and spear points are beautifully retouched by pressure flaking on all surfaces. The side and end scrapers have retouched edges from which have been removed extremely minute flakes. On the other hand, some of the larger spear points or blades and the core scrapers are crudely chipped by percussion flaking and lack finer retouching. Also crudely chipped by percussion only are the quartzite hide-scrapers and the notched sinkers.

Arrowpoints, Spearheads, and Knives

About one-fourth of the chipped stone artifacts recovered fall into the class of projectile points and/or knives. The names arrowpoint, spearhead, and knife which are generally applied to this form of point imply a differentiation of function which it is usually impossible to distinguish in tools of archaeological provenience because too little is known of the relation between form and function. No attempt will be made here to classify the points according to the uses to which they were put.

Material. The material most often used for points was chalcedony, a class of mineral which includes a number of closely related types such as jasper, chert, and flint. These vary according to the number and kinds of mineral impurities they contain. The chalcedony of our region varies from translucent white to gray, tan, dark brown, red, or black. The next most common material is argillite, a partially metamorphosed clay. Only the larger, more crudely chipped specimens are of argillite, which is much inferior to chalcedony for making points. The frequency of occurrence of the different materials is as follows:

Chalcedony	118	42 per cent
Argillite	107	37 per cent
Basalt	53	19 per cent
Obsidian	5	2 per cent
Quartzite	1	..
	<hr/> 284	<hr/> 100 per cent

Outcroppings, boulders, and river pebbles of chalcedony, argillite, basalt, and quartzite are common in the upper Columbia region. Obsidian does not occur there. Our obsidian points are of a banded type of obsidian characteristic of the volcanic region of southeastern Oregon, and the material probably came from there. That only one point is of quartzite is to be explained by the fact that quartzite is not suitable for fine chipping and fractures too easily to make an efficient projectile point.

Form. For descriptive and comparative convenience we have used, with slight modifications, the scheme of classification of point forms employed by Strong, Schenck, and Steward for the Dalles-Deschutes region.¹ This scheme is based on Gifford and Schenck's classification² which was adapted from one proposed by Thomas Wilson in 1899.³

In figure 12 are shown the principal forms recognized for our region. Below is given an outline of the classification. The primary basis for classification is the presence or absence of stem, and the secondary basis is the form of the base or stem. The classification takes no account of variations in size or the uses to which the points may have been put.

N. (Not stemmed)

A. Leaf-shaped

- a. Pointed at both ends
- b. Pointed at one end
 1. Convex base
 2. Straight base

B. Triangular

- a. Straight base
- b. Concave base
 1. Edges unnotched
 2. Edges notched
- c. Convex base

C. Pentagonal

S. (Stemmed)

A. Contracting stem

- a. Shouldered
- b. Barbed

B. Parallel sided stem

- a. Shouldered
- b. Barbed

C. Expanding stem

- a. Shouldered
 1. Convex base
 2. Straight base
- b. Barbed
 1. Convex base
 2. Straight base
 3. Concave base

¹ *Archaeology of the Dalles-Deschutes Region*, pp. 77-84, fig. 11.

² *Archaeology of the Southern San Joaquin Valley*, p. 81, fig. 1026.

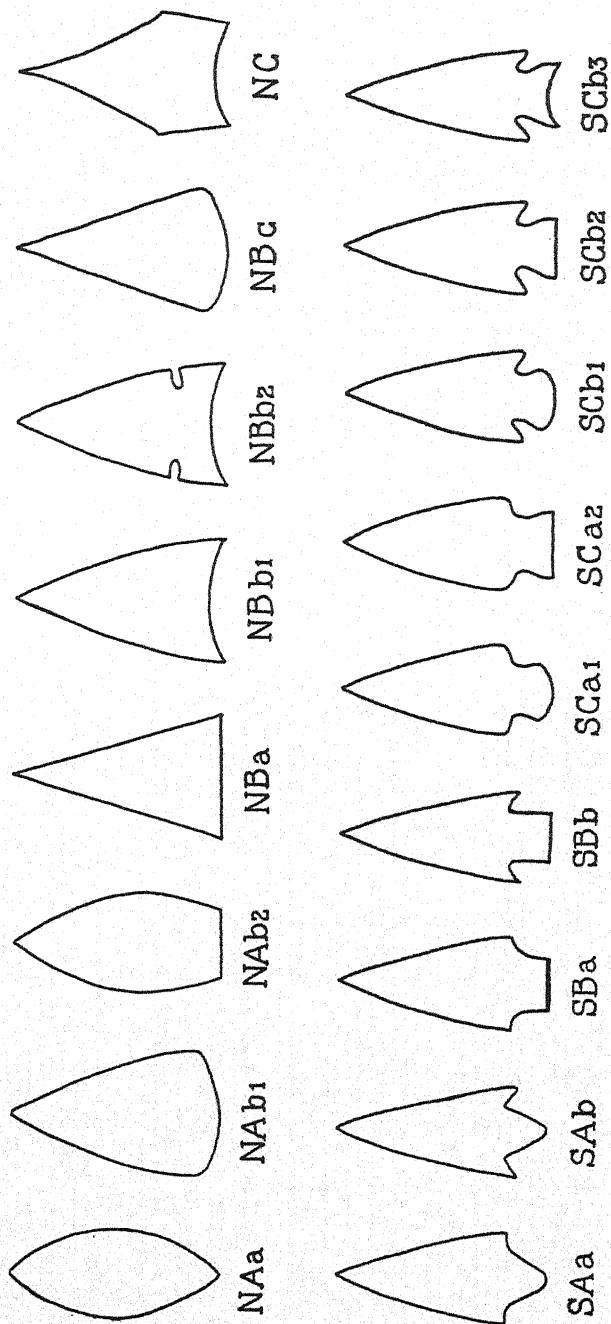


Figure 12. Outlines of Chipped Projectile Point Forms

Description of Points by Type

NAa (Pl. I j-m)

- Material: Chalcedony, 2; basalt, 7; argillite, 2.
 Size: 9 specimens from 1½ inches to 2½ inches long, 2 argillite specimens 5½ inches and 6½ inches long.
 Workmanship: Fine flaking and retouching all over on small specimens; argillite specimens uniform but show very large flakes by percussion and no pressure flaking.

NAb₁ (Pl. I a-e)

- Material: Argillite, 75; chalcedony, 14; basalt, 7.
 Size: 34 under 2½ inches long, remainder 2½-7 inches long, of which only 2 are not argillite.
 Workmanship: All specimens of chalcedony and basalt are finely chipped and retouched all over; some of the smaller ones of argillite show small uniform chipping, but the larger ones are very crudely chipped by percussion.

NAb₂ (Pl. I f-i)

- Material: Argillite, 3; chalcedony, 7.
 Size: 6 under 2½ inches long, others 2½ to 7½ inches long.
 Workmanship: All specimens show fine flaking and retouching all over.

NBa (Pl. II a-d)

- Material: Argillite, 7; chalcedony, 6; basalt, 2.
 Size: 13 under 2½ inches long, other two 3½ inches long.
 Workmanship: All small specimens and one large specimen show fine chipping and retouching all over; other large (argillite) specimens show fine chipping on edges only.

NBb₁ (Pl. II e-h)

- Material: All 5 specimens of chalcedony.
 Size: All specimens under 1½ inches long.
 Workmanship: Fine chipping and retouching all over on all specimens.

NBb₂ (Pl. II i-o)

- Material: Chalcedony, 22; basalt, 6; obsidian, 3.
 Size: No specimens longer than 1½ inches.
 Workmanship: Very fine retouching displayed by all specimens.

NBc (Pl. II p-s)

- Material: Argillite, 13; chalcedony, 4; basalt, 1.
 Size: 5 under 1¾ inches long, remainder (those of argillite) 2½ inches to 5 inches long.
 Workmanship: Small specimens show fine retouching all over; some argillite specimens have been finely retouched all over but others show cruder percussion chipping only.

NC (Pl. II t-u)

- Material: Chalcedony, 2.
 Size: One 2¾ inches long, the other 1¾ inches long.
 Workmanship: Both specimens show excellent flaking and retouching all over.

SAa (Pl. III a-b)

- Material: Chalcedony, 11; basalt, 1.
 Size: All specimens under 1½ inches long.
 Workmanship: 8 specimens show fine flaking and retouching all over; 2 are retouched on one face only, the other face is the natural smooth surface of the original flake; 2 are chipped on edges but both faces are the smooth faces of the original spall.

SAb (Pl. III c-d)

Material: Chalcedony, 2.

Size: Both 1½ inches long.

Workmanship: One specimen is chipped and retouched all over, the other retains the natural surface of the spall on the concave face, while the convex face is chipped; the edges are finely serrated.

SBa (Pl. III e-g)

Material: Chalcedony, 10; basalt, 4.

Size: All under 2½ inches long.

Workmanship: 11 show fine chipping all over; one has a very uniform serrated edge; one is chipped only on one face, the other face being untouched; two are chipped on edges only, both faces being untouched surfaces.

SBb (Pl. III h-j)

Material: Chalcedony, 4; basalt, 1.

Size: All less than 1½ inches long.

Workmanship: 4 show chipping and retouching all over; one is chipped on one face only, the other face is untouched.

SCa₁ (Pl. III k-l)

Material: Chalcedony, 1; basalt, 2.

Size: All less than 1½ inches long.

Workmanship: 2 have been chipped and retouched all over; 1 has very crude chipping on one face, the other face showing the natural surface.

SCa₂ (Pl. III m-o)

Material: Chalcedony, 6; basalt, 4; quartzite, 1.

Size: All less than 1½ inches long.

Workmanship: All except the quartzite specimen show fine chipping and retouching all over; the quartzite specimen is chipped on the edges only, the faces being natural cleavage surfaces.

SCb₁ (Pl. III p-r)

Material: Chalcedony, 4; basalt, 3.

Size: All less than 2 inches long.

Workmanship: All have been finely chipped and retouched on all surfaces.

SCb₂ (Pl. III s-y)

Material: Argillite, 5; chalcedony, 16; basalt, 13; obsidian, 2.

Size: Ranging from ¾ inch to 2 inches long.

Workmanship: All except 5 are finely retouched all over; 4 are chipped and retouched on one face only, their other face being the natural smooth surface; 1 is chipped on the edges only, both faces being the natural smooth surface of the original spall.

SCb₃ (Pl. III z-cc)

Material: Argillite, 2; chalcedony, 2; basalt, 2.

Size: All less than 2 inches long.

Workmanship: All are finely retouched all over.

Distribution. The distribution of point forms by site is shown in table 3. The distribution by depth for sites 11, 24, 31, and 45 is given in table 18. The largest number of points (50) of all forms came from site 44. Unfortunately almost all of these came from the surface (cf. pp. 29-31), so that nothing can be said of their relative depth or association. It is significant, however, that 35

are large NAb₁ blades of argillite. This is more than a third of the total number of NAb₁ points and nearly half the NAb₁ points of argillite. Seven NAb₁ blades came from site 45, of which six are argillite. Eighteen argillite NAb₁ blades came from site 49 (surface). From sites 44, 45, and 49 together came 63 per cent of all NAb₁ points and 79 per cent of argillite NAb₁ points.

TABLE 3
DISTRIBUTION OF CHIPPED STONE PROJECTILE POINTS BY TYPE

TYPE	SITES																								China Bend	Misc.*	Total
	2	7	8	11	22	24	25	29	31	34	38	39	40	42	43	44	45	46	47	49	50	51					
NAa.....						5			1									2		2			..	1	11		
NAb ₁	1			5		8	3		6	2					1	35	7	7		18			2	1	96		
NAb ₂						1						1				2		3	2		1		..	..	10
NBa.....				2	1	1			5							3	1	1					..	1	15		
NBb ₁									1										4				..	..	5
NBb ₂	1		2	1	2												1	1	22				..	1	31		
NBc.....				4	1	1			1					1	1	1	4			3			1	..	18		
NC.....										1								1					..	..	2
SAa.....	1	1		1	2	5		1	1														..	..	12
SAb.....						1			1														..	..	2
SBa.....	1					3	1		2	1						2	1	3					..	..	14
SBb.....				2		1			1								1						..	..	5
SCa ₁				1					1														..	1	3		
SCa ₂	1			3					2		1					1	1						..	2	11		
SCb ₁				3									1				1	1	1				..	..	7
SCb ₂				13	1	2			6		1					6	2	2				1	..	2	36		
SCb ₃				3					1			1					1						..	..	6
TOTAL...	5	1	2	38	7	28	4	1	29	4	2	2	1	1	2	50	20	21	29	23	1	1	3	9	284		

* Surface finds, to which no site numbers were given.

No other significant site differences are shown by the distribution of point forms. This may be due to the fact that the number of points from most of the sites is too small to bring out significant differences. However, it is probable that the material culture varied only slightly throughout our region. This conclusion is confirmed by our other types of artifacts and by ethnological data. We do not believe that any of our sites is more than a few hundred years old, so the time span represented by our material is not great and the relative uniformity is therefore not surprising.

Comparisons. It would be of interest to compare our projectile point forms with those found in the Dalles-Deschutes region. Unfortunately, more than two-thirds of the points described by Strong are from the Gammon Collection,⁴ which was secured in the general region but is undocumented as to site provenience. A private collection of this type is probably not completely representative of the region because of the selection exercised by the collector. However, if the Gammon Collection be included, the following differences between the Dalles-Deschutes and our region may be noted (table 4):

TABLE 4

FORM FREQUENCIES OF POINTS IN THE DALLES-DESCHUTES AND UPPER COLUMBIA REGIONS

Form	Per cent of total points Dalles-Deschutes*	Per cent of total points Upper Columbia
NA—(leaf-shaped).....	14	42
NAb ₁	10	34
SBa.....	20	4
SBb.....	24	2
N—(non-stemmed).....	19	66
S—(stemmed).....	81	34

*Compiled from table 4, *Archaeology of the Dalles-Deschutes Region*.

It is seen that stemmed points are preponderant in the Dalles-Deschutes region, while on the upper Columbia non-stemmed points outnumber stemmed points two to one. The most abundant single form in the Dalles-Deschutes region is SBb (24 per cent); in our region NAb₁ blades are the most numerous (34 per cent). It is of interest that many of the Dalles-Deschutes NA- blades exhibit crude workmanship,⁵ as is the case with our blades of this form.

Strong's form NAb₃ (leaf-shaped with concave base), also described by Krieger⁶ for Grant County, Washington, was not found by us. Strong did not find our NC form (pentagonal; pl. II t-u) but Smith⁷ illustrates one from the Yakima Valley.

The meager descriptions of point forms and the lack of form frequency data by Krieger⁸ for Grant County, and by Smith for the Yakima Valley,⁹ Lytton,¹⁰ and the Thompson River region,¹¹ make detailed comparisons with other parts of the Plateau impossible.

⁴ There are 657 points from the Gammon Collection, while other points total 305. (*Archaeology of the Dalles-Deschutes Region*, table 4.)

⁵ *Archaeology of the Dalles-Deschutes Region*, p. 78.

⁶ *Prehistoric Pit House Village Site*, pl. 2, nos. 4, 12-14.

⁷ *Archaeology of the Yakima Valley*, pl. 11.

⁸ *Prehistoric Pit House Village Site*.

⁹ *Archaeology of the Yakima Valley*.

¹⁰ *Archaeology of Lytton, British Columbia*.

¹¹ *Archaeology of the Thompson River Region*.

Drills, Gravers, End Scrapers, Side Scrapers, Rough Discoidal Scrapers

These classes comprise more than one-fourth of the total chipped stone artifacts.

Material. As in the case of the arrowpoints, chalcedony is the most frequently used material. Basalt, argillite, and opal are used to a slight extent. The frequency of occurrence of these materials is as follows:

Chalcedony	307	84 per cent
Basalt	31	8 per cent
Argillite	27	7 per cent
Opal	2	1 per cent
TOTAL.....	367	100 per cent

It is of interest to note that all of the ten rough discoidal core scrapers are of argillite, and that nine of these came from site 44, from which came the large number of NAb₁ blades of argillite.

*Description by Class**Drills (Pl. IV a-d)*

- Material:* Chalcedony, 9; basalt, 2.
Form: Usually described as having a definite bore or pile, forming a parallelogram in transverse cross section, being long and pointed with a more or less definite base. The base varies from a tang-like projection to one that is broad and fan-like.
Size: Ranging from 1½ inches to 2½ inches long.
Workmanship: All specimens chipped and retouched all over.

Gravers (Pl. IV e-k)

- Material:* Chalcedony, 48; basalt, 1; opal, 1.
Form: Resembling end scrapers in being made from conchoidal flakes chipped on one side only but differing in that they are pointed like a drill, whereas end scrapers have a broad cutting edge; graver points form a semicircular transverse cross section, whereas drills form a parallelogram or rough circle. Base is irregular, usually fan-like, fitting conveniently between the thumb and index finger.
Size: Ranging from 1 to 2 inches long.
Workmanship: All are made from flakes with concave sides unretouched, but in most cases the top side and point are finely flaked and retouched.

End scrapers (Pl. IV l-q)

- Material:* Argillite, 2; chalcedony, 50; basalt, 4.
Form: Made from conchoidal flakes thickened at one end; the concave surface is unworked but the convex side is chipped at the edge of the thick end; the other edges are usually unretouched. Occasionally the end opposite the chipped end extends into a definite handle.
Size: All less than 2 inches long.
Workmanship: The concave surface is smooth and unworked; the convex side is chipped and the cutting edge is finely retouched.

Side scrapers (Pl. IV t-x)

- Material: Argillite, 7; chalcedony, 26; opal, 1; basalt, 20.
- Form: Similar to end scrapers, except that they are made from longer conchoidal flakes and retouched on a cutting edge made on one or both long sides instead of the end.
- Size: From 1 inch to 2½ inches long.
- Workmanship: The concave surface is unretouched; the convex side is usually flaked and retouched, and the cutting edges are finely retouched.

NOTE: Combination side and end scrapers are shown in pl. IV r-s.

Flake knives (Pl. V a-p)

- Material: Argillite, 2; chalcedony, 44; basalt, 1.
- Form: Usually thin conchoidal flakes (much thinner than those used for scrapers or graters), with concave surface unretouched but occasionally with convex side retouched slightly. Some are retouched on one edge only, making only one cutting edge; others are retouched on two edges and occasionally on three edges. No particular shape is characteristic; usually the shape is determined by that of the original spall.
- Size: Ranging from 1 inch to 2½ inches long.
- Workmanship: The concave surface is unretouched, the convex side is occasionally retouched; the cutting edges are very finely retouched by removal of minute flakes.

Unclassifiable retouched flakes

- Material: Argillite, 6; chalcedony, 130; basalt, 3.
- Form: This class includes all unclassifiable flakes that show retouching. Some may be fragments of points, knives, scrapers, or other chipped implements. Fine flaking and retouching characteristic of points or knives are shown on some while on others the workmanship is not so fine. Since all pieces are fragmentary, size ranges are inconsequential and are not given.

Rough discoidal scrapers or cores (Pl. V q-s)

- Material: Argillite, 10 (none of other material).
- Form: These are rough, flat, generally circular cores, chipped by percussion method. Usually one surface is chipped more than the other, which may be unchipped. The edges are chipped all the way around. These may be unfinished scrapers or rejected cores; a few are sufficiently well finished to be used as scrapers.
- Size: Varying from 1½ inches to 3 inches in diameter, and ¾ inch to 1 inch in thickness.
- Workmanship: Crude percussion chipping on all edges and on one surface to a greater extent than on the other.

Distribution. The distribution by site of drills, graters, scrapers, and the like, is shown in table 5, and the distribution by depth for sites 11, 24, 31, and 45 is given in table 18. They were most numerous at sites 11 and 24, where they came primarily from the rich, deep middens. There is no significant variation in the occurrence of these different classes at different sites, with the exception of the rough discoidal core scrapers of argillite. Nine of these came from site 44 and the tenth from site 34. This distribution seems to be correlated with that of the large rough NAb₁ blades of argillite, most of which came from the northern part of our region, and more than a third from site 44 alone.

TABLE 5
DISTRIBUTION OF DRILLS, GRAVERS, SCRAPERS, AND KNIVES

TYPE	SITES																				Mouth of Stranger Creek	Misc.*	Total
	2	7	11	12	24	25	29	31	34	38	39	40	42	43	44	45	46	47	49				
Drills.....	..	..	4	..	3	..	1	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	11
Gravers.....	3	..	5	..	9	1	2	10	3	2	..	1	..	..	2	3	6	1	1	1	1	1	50
End Scrapers..	1	1	14	..	6	1	2	10	2	2	..	1	..	4	2	1	7	..	..	..	..	2	56
Side Scrapers..	1	1	13	1	3	1	..	22	2	..	..	..	..	2	2	3	3	..	..	..	..	..	54
Flake Knives..	3	..	12	2	8	1	..	3	..	1	1	..	1	1	1	6	5	1	..	..	..	1	47
Unclassifiable retouched flakes.....	2	..	63	..	21	5	1	24	9	..	..	1	1	2	2	4	2	..	..	..	..	2	139
Discoidal rough core scrapers.....	..	..	..	..	..	..	..	..	1	..	..	..	..	..	9	..	..	..	..	..	..	..	10
TOTAL....	10	2	111	3	50	9	6	71	17	5	1	3	2	9	19	17	23	2	1	1	6	367	

* Surface finds, to which no site numbers were given.

Comparisons. Drills and gravers similar to ours are reported by Strong for the Dalles-Deschutes region.¹² Most of his type G scrapers¹³ seem to correspond to our end scrapers, although a few¹⁴ we would call side scrapers. His RA scrapers with concave chipped edge¹⁵ we have classified as flake knives. His throwing stones¹⁶ and one of his special scrapers¹⁷ appear to be similar to our discoidal core scrapers, although not made of argillite like ours. Smith reports drills, end scrapers, and side scrapers similar in form to ours from Lytton¹⁸ and the Thompson River region,¹⁹ and similar drills, end scrapers, side scrapers, and rough discoidal core scrapers from the Yakima Valley.²⁰ Spinden²¹ found similar drills and irregularly shaped plano-convex scrapers in the Nez Percé region. The data for Wahluke do not permit comparison.

¹² *Archaeology of the Dalles-Deschutes Region*, pp. 85-86, pl. 15.

¹³ *Ibid.*, p. 86, fig. 12.

¹⁴ *Archaeology of the Dalles-Deschutes Region*, pl. 17 b,c,g.

¹⁵ *Ibid.*, p. 87, pl. 16.

¹⁶ *Ibid.*, pp. 89-90, pl. 19 a-h.

¹⁷ *Ibid.*, pp. 105-106, pl. 19p.

¹⁸ *Archaeology of Lytton, British Columbia*, p. 148.

¹⁹ *Archaeology of the Thompson River Region*, pp. 118-119, fig. 352.

²⁰ *Archaeology of the Yakima Valley*, pp. 66-70, figs. 47-52, 54.

²¹ *Nez Percé Indians*, p. 185, figs. 23-25.

Quartzite Scrapers

A large number of quartzite scrapers were found on the surface and in trenches at every site. The distribution of these, as well as the form, size, source of material, and position, is shown in table 6. The distribution by site is not shown, since this type of scraper was found at every site worked and, in fact, was the most abundant type of implement at every site.

TABLE 6
TYPES AND DISTRIBUTION OF QUARTZITE SCRAPERS

		Whitestone Creek region		Gifford-Kettle Falls region	
		No.	%	No.	%
Form	Definitely shaped; round or oval; edges chipped all or most of the way around.	19	17	71	20
	Not shaped; one or more edges chipped	95	83	291	80
	TOTAL	114	100	362	100
Size	2 inches or less in diameter	26	23	32	9
	2 to 6 inches in diameter	80	77	310	86
	6 to 10 inches in diameter	0	0	20	5
	TOTAL	114	100	362	100
Source of material	From river boulders	17	15	4	1
	Plates from outcroppings	97	85	358	99
	TOTAL	114	100	362	100
Position	Surface	62	55	211	58
	Below 6 inches	47	41	143	40
	In burial	5	4	8	2
	TOTAL	114	100	362	100

There appeared, however, to be some differences between the northern and southern parts of the area worked, so for the purposes of tabulation the territory was divided into the region below the mouth of the Spokane (Whitestone Creek region) and the region north of the Spokane (Gifford-Kettle Falls region). It will be noted that these scrapers are about three times as numerous in the north, that they tend to be larger in the north, and that river boulders of quartzite are a much less important source of material in the north than in the south. Probably these differences can be explained largely, if not entirely, on the basis of available supplies of quartzite rather than as a reflection of regional cultural differences. In the Kettle Falls region there are abundant outcroppings of quartzite which break off in planes or plates well adapted to the manufacture of scrapers, while such outcroppings are absent or at least very scarce to the south, where river boulders were used more frequently as a source of material.²² This difference in the availability of material probably accounts for the greater abundance and size of the scrapers to the north.

²² In the archaeological culture at the mouth of the Thompson River, quartzite scrapers were made largely from boulders, although plates from outcroppings were also used (Smith, *Archaeology of Lytton, British Columbia*, pp. 146-147, figs. 60-63).

About four-fifths of these scrapers from both regions are not deliberately shaped but merely chipped on one or two edges to form a blade that could be used as a knife or scraper (pl. VI g-j). The majority of these do not appear to be suitable for hafting. The remaining fifth consists of deliberately shaped scrapers or knives with edges chipped all or nearly all the way around, the majority being round or oval in shape (pl. VI a-f).²³ Probably most of these were hafted. Similar scrapers hafted in two- to three-foot wooden handles to serve as hide fleshers or scrapers were seen by the authors being used by Mrs. Rosie Seymour, 84-year-old Lakes-Okanagon Indian woman of Kelly Hill, near Boyd's, Washington. They are also reported for the Sanpoil and Nespelem,²⁴ for the Okanagon,²⁵ and for the Thompson.²⁶ The distribution of these scrapers according to depth and occurrence in graves is very nearly the same for the northern and southern parts of our region.

Notched Sinkers

Six of these were found, one at site 7, one at site 24, and four at site 25. They are usually made from a flat, roughly circular river cobble, ranging in size from 2 to 7 inches in diameter and $\frac{1}{2}$ to 2 inches in thickness. Notches are chipped on opposite edges (pl. XVII i, l-m). One, however, is ham-shaped and notched on the end (pl. XVII f). Notched sinkers like these are reported as being very abundant in the Dalles-Deschutes region (about 250, most of them from the surface, were found by Strong).²⁷ Smith found them in abundance on the surface at Priest Rapids, on the Columbia in central Washington.²⁸ According to Ray, the Sanpoil made seine sinkers by fastening an unnotched flat pebble into a loop of willow.²⁹

Unidentified Chipped Slate Object

A serrate-edged slate object $11\frac{1}{2}$ inches long, $5\frac{1}{4}$ inches wide and $1\frac{1}{2}$ inches thick (pl. XVI f) was found at site 2 where it had been washed out of the bank. No particular use for it can be suggested.

ARTICLES OF GROUND STONE

Ground stone artifacts of the upper Columbia divide into a variety of types but are not impressive in total number (137) or in quality of workmanship and, with the exception of celts and a Plains type pipe, there is nothing particularly outstanding.

Artifacts which occur in greatest abundance are hammerstones, pestles, and mauls. Others which occur with less frequency are celts, arrow smoothers, pipes, sinkers, mortars, whetstones, and needles.

Basalt, granite, and river-worn cobbles are the materials most frequently used.

²³ At Lytton, Smith found both carefully shaped and carelessly made quartzite scrapers corresponding exactly to the types described here (*Archaeology of Lytton, British Columbia*, pp. 146-147).

²⁴ *Sanpoil and Nespelem*, p. 95, pl. 2f.

²⁵ *Southern Okanagon*, p. 67.

²⁶ *Thompson Indians of British Columbia*, p. 185, fig. 127.

²⁷ *Archaeology of the Dalles-Deschutes Region*, pp. 88-89, pl. 18 a-j.

²⁸ *Archaeology of the Yakima Valley*, p. 30, fig. 13.

²⁹ *Sanpoil and Nespelem*, p. 69, fig. 13.

Mauls, Pestles, and Hammerstones

Distinction between pestles and hammerstones is difficult to make in the case of the specimens found by us. Mauls, because of their characteristic form and workmanship, are easiest to classify.

Following the method of distinction used by Strong,³⁰ we refer to a maul as having a distinct handle with an enlarged base giving it a bulbous or bottle-like appearance. The handle end is commonly flaring or hat-like. The tools show considerable care in workmanship, being well finished and highly polished. The handle end seldom shows evidence of use but the base and sometimes the sides indicate extensive usage. Supposedly the most common use for mauls was for driving wedges in splitting timber.

Implements which have been shaped but without bulbous bases are called pestles. Pestles are generally very long in comparison to diameter, one end being larger than the other and showing more grinding or pecking. They seldom show any indication of having been used for heavy pounding.

Pieces which do not show a characteristic form or detailed working are called hammerstones. Even though they lack a definite form they are usually of such size and natural shape as to make them very convenient tools. They are usually somewhat longer than they are wide and show more use on a particular end or side. This type constitutes the greater part of our ground stone implements.

Mauls and pestles are usually made of granite or basalt; one pestle is of sandstone. Occasionally pestles are made of long river cobbles. Any available rock, it seems, was used for hammerstones. The larger hammerstones usually show battering caused by heavy work, whereas small ones apparently were used for light work.

*Description**Mauls (Pl. XVI g-m)*

Material: Basalt, 11; granite or diorite, 1.

Size: Ranging from 6 inches long and 3 inches in diameter to 8½ inches long and 3¾ inches in diameter.

Form: These have a distinct handle, a flaring base, and a smaller but also flaring head. One (pl. XVIg) has a head carved to represent an animal head. All of the mauls are well finished and some are highly polished.

Pestles (Pl. XVI a-e)

Material: Basalt, 17; granite or diorite, 5; river cobble, 2; sandstone, 1.

Size: Ranging from 4 inches long and 1½ inches in diameter to 12½ inches long and 3 inches in diameter; some are fragmentary.

Form: Usually long in comparison to diameter, one end being battered or abraded more than the other. The majority of pestles are well finished and usually polished. One has what may possibly be a phallic head (pl. XVIId), another is long, flat, and shaped roughly like a fish (pl. XVIle).

³⁰ *Archaeology of the Dalles-Deschutes Region*, p. 94.

Hammerstones (Pl. XVII a-e)

Material: Basalt, 19; granite, 3; river cobble, 31.

Size: Ranging from a round river cobble 3 inches in diameter to one piece 25 inches long and 5 inches in diameter; typical size from 5 inches to 12 inches long.

Form: No characteristic shape, although usually longer than wide. They seem to be chosen for convenient size and shape. Some are perhaps unfinished pestles. This may be the case with the specimens shown in pl. XVII a-b, which have been roughly shaped by grinding on the sides. Plate XVIIb in particular is definitely shaped, and grooves on the sides indicate that more grinding was to be done. The large stones are battered while the small ones are only pecked.

Distribution. The distribution of mauls, pestles, and hammerstones is shown in table 7. The greatest number of both pestles and hammerstones from any site came from site 2 (5 pestles and 8 hammerstones), while the greatest number of mauls came from site 46 (4). The majority of hammerstones and pestles came from the surface, whereas mauls were commonly found with burials. The probable explanation for this is that the mauls represent more work and care in making and were for this reason more valued and thus buried with the dead.

The distribution shows no significant variation in type from one part of our region to another. The forms most closely resemble those found at Lytton, British Columbia,³¹ and at Wahluke, Washington,³² and less so those forms reported for the Yakima Valley³³ and the lower Columbia.³⁴

TABLE 7
DISTRIBUTION OF PESTLES, HAMMERSTONES, AND MAULS

Sites	2	7	8	11	12	23	24	25	29	31	33	34	35	38	40	43	44	45	46	49	51	Misc.*	Total
Pestles.....	5	..	1	..	..	..	1	..	1	1	..	2	..	1	..	1	4	3	2	..	..	3	25
Hammerstones.....	8	1	..	3	1	1	5	4	..	4	1	2	1	..	2	1	6	3	3	1	..	6	53
Mauls.....	1	..	..	1	..	..	3	..	..	..	..	..	..	..	1	..	1	..	4	..	1	..	12
TOTALS.....	14	1	1	4	1	1	9	4	1	5	1	4	1	1	3	2	11	6	9	1	1	9	90

*Articles under this column were collected on various survey trips and exact locations were not given.

Celts and Other Cutting Implements

Twelve ground stone cutting implements were found. With the exception of one celt made of soft talc schist mixed with actinolite, these are of anthophyllite or nephrite, with a hardness of 5 to 6. The distribution, type, and material are shown in table 8.

Eight of the twelve cutting implements found are celts (pl. XV a-d, f). These have the form of a long narrow blade with one end ground to a sharp, even, and (with one exception) straight edge. In profile this edge is beak-shaped, being ground down much more on one side than the other. The form is identical with

³¹ Smith, *Archaeology of Lytton, British Columbia*, figs. 22-27.

³² Krieger, *Prehistoric Pit House Village Site*, pl. 1.

³³ Smith, *Archaeology of the Yakima Valley*, figs. 21-37.

³⁴ Strong, *Archaeology of the Dalles-Deschutes Region*, fig. 14.

TABLE 8
DISTRIBUTION OF CELTS AND OTHER CUTTING IMPLEMENTS

Site	Location	Implement	Size	Color	Material
24	Burial 12	celt	$8\frac{1}{2}" \times 2\frac{1}{4}"$ $\frac{3}{8}"$ thick	jade green	anthophyllite
31	Trench 1 Depth 17"	fragment of celt	2" wide $\frac{1}{2}"$ thick	nearly black	anthophyllite
	Trench 3 Depth 11"	celt	$3\frac{1}{2}" \times 2\frac{1}{2}"$ $\frac{7}{16}"$ thick	black	mixture of talc schist and actinolite
43	Surface	unfinish.chis'l	$2\frac{1}{2}" \times 1\frac{1}{8}"$ $\frac{5}{8}"$ thick	gray-green	nephrite
46	Burial 2	triangular flake knife	blade 1" altitude $\frac{3}{4}"$ thickness $\frac{1}{8}"$	gray-green	anthophyllite
	Burial 17	triangular flake knife	blade 1" altitude 1" thickness $\frac{3}{16}"$	dark green	anthophyllite
	Burial 28	triangular flake knife	blade $1\frac{1}{4}"$ altitude $1\frac{1}{4}"$ thickness $\frac{1}{4}"$	dark green	anthophyllite
	Burial 38	celt	$11\frac{13}{16}" \times 2\frac{3}{8}"$ $\frac{1}{8}"$ thick	jade green	anthophyllite
47	Depth 48"	celt	$5" \times 2"$ $\frac{7}{8}"$ thick	dark green	anthophyllite
	Burial 4	celt	$6\frac{3}{4}" \times 2\frac{1}{8}"$ $\frac{3}{8}"$ thick	nearly black	anthophyllite
	Depth 43"	celt	$9" \times 2\frac{1}{2}"$ $\frac{5}{8}"$ thick	nearly black	anthophyllite
Little Dalles	Surface	celt	$4\frac{1}{4}" \times 2\frac{1}{8}"$ $\frac{3}{8}"$ thick	jade green	anthophyllite mixed with nephrite

that of the celts described for the Thompson Indians,⁸⁵ and those found in graves at Lytton.⁸⁶ A specimen of gray-green nephrite, apparently an unfinished chisel, came from the surface at site 43 (pl. XVe). This chisel, as well as a number of the celts, shows remains of the grooves made in cutting out the implement. The method was to cut grooves from both sides until a core about $\frac{1}{4}$ inch thick remained between the grooves, and then to break the core. In some cases the broken core has been polished smooth or obliterated; in others it has been left rough.⁸⁷ According to Teit,⁸⁸ the Thompson Indians cut the grooves with grit-

⁸⁵ Teit, *Thompson Indians of British Columbia*, fig. 122; Smith, *Archaeology of the Thompson River Region*, figs. 349, 350.

⁸⁶ Smith, *Archaeology of Lytton, British Columbia*, figs. 40-42.

⁸⁷ Smith illustrates nephrite and serpentine boulders from which pieces have been cut by this method (*Archaeology of Lytton, British Columbia*, figs. 44-47).

⁸⁸ *Thompson Indians of British Columbia*, p. 182.

stone or beaver teeth,³⁹ and according to Smith,⁴⁰ the grooves were started with horsetail rush, continued with beaver teeth, and finished with quartz or sandstone, with or without the use of sand as an abrasive.

Three triangular ground flake knives of anthophyllite came from site 46. They are sharpened on one edge only.

The provenience of the anthophyllite and nephrite is of some interest. None is known to occur along the banks of the middle and upper Columbia. Serpentine occurs near Waits Lake in Stevens County, Washington, but no anthophyllite or nephrite is found here. Evidently serpentine boulders are found at Kamloops on the Thompson River.⁴¹ The celts found at Lytton were made from serpentine (hardness 3) and nephrite (hardness 5 to 6). There are outcroppings of these materials on the Thompson and Fraser rivers in the vicinity of Lytton.⁴² A deposit of anthophyllite similar to that in our specimens exists on the Skagit River in western Washington.⁴³ It is perhaps significant that 9 out of the 11 specimens of anthophyllite and nephrite came from the mouth of the Kettle River northward. This distribution suggests the possibility that this material is from the Thompson River region, or came from the west coast via Cascade Pass and the Okanagan country to Kettle Falls.

Pipes

Six complete and two fragmentary stone pipes were found (pl. XIVa-g). With the exception of one elbow pipe of Plains type (pl. XIVg), all are of the tubular type. The elbow pipe and one tubular pipe (pl. XIVE) are of catlinite; the others are of talc schist with some intermixture of actinolite. Talc schist is similar to steatite but more schistose.

Description.

No. 1783 (pl. XIVb), from site 8, disturbed burial. Tubular, 5½ inches long, bowl ¾ inch in diameter, tapering to ½ inch at stem. At the end of the stem is a flange 1 inch in diameter, in the edge of which is a small hole which no doubt served to attach the pipe by means of a thong or cord to the secondary stem of reed or wood which was probably added. This pipe is very similar to one of steatite found by Smith at Lytton⁴⁴ and somewhat less like sandstone pipes from the Dalles-Deschutes region.⁴⁵

No. 1967 (pl. XIVd), from site 46, burial 7. Tubular, 1½ inches over all, bowl 1 inch long and 1 inch in diameter tapering to ½ inch at the stem, which was probably inserted into a secondary stem of reed or wood. This is fairly similar to a sandstone pipe shown by Strong.⁴⁶

No. 1998 (pl. XIVf), from site 46, burial 22. Fragment of a tubular pipe consisting of lower portion of bowl and part of stem. The bowl is decorated with incised, spiralling, vertically hatched bands, and there is a small broken ridge circling the stem at its junction with the bowl.

³⁹ More likely beaver teeth were used for softer stones, such as steatite (Smith, *Archaeology of the Thompson River Region*, p. 146, n. 2).

⁴⁰ *Archaeology of the Thompson River Region*, p. 416.

⁴¹ Smith, *Archaeology of the Thompson River Region*, p. 417.

⁴² Smith, *Archaeology of Lytton, British Columbia*, pp. 132-133.

⁴³ Personal communication from Dr. Charles Campbell of Washington State College.

⁴⁴ *Archaeology of Lytton, British Columbia*, fig. 104.

⁴⁵ Strong, *Archaeology of the Dalles-Deschutes Region*, pl. 24, a,b,l.

⁴⁶ *Ibid.*, pl. 24f.

No. 2005 (pl. XIVc), from site 46, burial 23. Tubular, $3\frac{1}{2}$ inches long; the bowl is $1\frac{1}{2}$ inches long and tapers from 1 inch at the mouth to $\frac{1}{2}$ inch at the stem. The stem is slightly tapered at the end as if to fit into a secondary stem. There is a narrow incised band at the junction of stem with bowl. This pipe is very similar in form to ones from Lytton⁴⁷ and Kamloops⁴⁸, and is probably like a broken specimen illustrated by Strong⁴⁹ for the Dalles-Deschutes region.

No. 2109 (pl. XIVA), from trench at site 47. Tubular, $7\frac{1}{2}$ inches long; bowl 1 inch in diameter and gradually tapering to $\frac{3}{4}$ inch near the stem end, there being no pronounced stem. At the stem end is a collar $\frac{3}{4}$ inch wide and 1 inch in diameter. The pipe appears to have been burned. The base of this pipe is similar to that of a fragmentary pipe from the Dalles-Deschutes region.⁵⁰

No. 2162 (pl. XIVE), from site 46, burial 38. Tubular, $2\frac{1}{8}$ inches long, of catlinite. The bowl tapers from 1 inch at the mouth to $\frac{5}{8}$ inch at the base, there being no appreciable stem. A groove has been cut three-fourths around the base. This pipe is very similar to a steatite specimen from Lytton.⁵¹

No. 1782 (pl. XIVg), from site 8, burial 1. Plains elbow type, $6\frac{1}{2}$ inches long, of catlinite. The bowl is 1 inch in diameter and 2 inches long, at right angles to the stem. Flange on top of and parallel to the stem at the stem end is perforated, no doubt for fastening the pipe to the secondary stem. Decorated with parallel incised lines on top of the flange and on top and bottom of the part projecting beyond the bowl.

No. 2034, site 46, burial 24. Fragment of stem of tubular pipe probably similar to No. 2005.

In form these pipes resemble most closely the pipes from graves at Lytton and in the Thompson River region, and they are similar to the pipes of the Dalles-Deschutes region. They are unlike the disc-shaped pipes found by Smith in the Yakima Valley⁵² and mentioned for the Nez Percé by Spinden,⁵³ and unlike the elbow pipes used in historic times by the Sanpoil and Nespelem,⁵⁴ the Okanagon,⁵⁵ and the Thompson.⁵⁶ The pipes from Lytton are of "steatite or nearly allied material";⁵⁷ those from the Dalles-Deschutes region⁵⁸ are of micaceous sandstone and a few of steatite; those from the Yakima Valley⁵⁹ are of steatite; those among the Okanagon⁶⁰ are of steatite and soapstone; and those among the Thompson⁶¹ are of steatite, soapstone, and occasionally sandstone.

The occurrence of catlinite as a pipe material in our region is of considerable interest, as it indicates contact with the Plains. The elbow catlinite pipe from site 8 is of typical Plains form and undoubtedly originated in that region. However, the tubular form of the other catlinite pipe, from site 46, is typical of the Plateau but not found in the Plains. No catlinite is known to occur west of the Rockies, so the raw material must have been traded from the Plains.

⁴⁷ Smith, *Archaeology of Lytton, British Columbia*, fig. 111.

⁴⁸ Smith, *Archaeology of the Thompson River Region*, fig. 374.

⁴⁹ Strong, *Archaeology of the Dalles-Deschutes Region*, pl. 24e.

⁵⁰ Strong, *Archaeology of the Dalles-Deschutes Region*, pl. 24k.

⁵¹ Smith, *Archaeology of Lytton, British Columbia*, fig. 105.

⁵² *Archaeology of the Yakima Valley*, figs. 107-109.

⁵³ *Nez Percé Indians*, fig. 6, pl. XX.

⁵⁴ Ray, *Sanpoil and Nespelem*, p. 168.

⁵⁵ Cline, *Southern Okanagon*, figs. 34, 35.

⁵⁶ Teit, *Thompson Indians of British Columbia*, figs. 171-174, 306-309.

⁵⁷ Smith, *Archaeology of Lytton, British Columbia*, p. 155.

⁵⁸ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 104.

⁵⁹ Smith, *Archaeology of the Yakima Valley*, pp. 107-116.

⁶⁰ Cline, *Southern Okanagon*, p. 65.

⁶¹ Teit, *Thompson Indians of British Columbia*, p. 300.

The Okanagon are known to have traded catlinite from the Shuswap⁶² who were in contact with the Blackfoot and Sarsi and probably acted as intermediaries between the northwestern Plains and the Plateau.

The occurrence of only the tubular pipe in our sites (with the exception of the intrusive Plains pipe), as well as at Lytton and in the Dalles-Deschutes region, tends to confirm Smith's conclusion⁶³ that the tubular pipe was the only form in the Plateau in prehistoric times, and that it was supplanted in recent times by bowl and elbow forms from the east. Tubular pipes are still remembered though no longer made by the Sanpoil and Nespelem⁶⁴ and the Thompson.⁶⁵

Girdled Sinkers (pl. XVIIg, j-k)

These consist of globular or oblong spheroid pebbles or rocks encircled by a transverse groove. Such articles are generally supposed to have been sinkers for fishing, both for nets and lines.⁶⁶ The possibility that they were for use as hammerstones or weapons has been suggested.⁶⁷ One specimen (pl. XVIIg) has been battered on either end and the groove is deeper than those generally found, suggesting its possible use as a hafted hammerstone.

Of the five sinkers found by us, two were of basalt, one of granite, one of river cobble, and one of shale. One was girdled by two parallel grooves but the others had only one.

Needles (pl. XV g-h)

Two pointed needle- or awl-like objects of slate, 3½ inches and 5 inches long, respectively, were found at site 46, one in burial 22 and the other in burial 24. The smaller one (pl. XVg) is oval in cross section while the larger (pl. XVh) is flat. A groove encircles the butt of the smaller one, while the larger has notches cut opposite each other on the edges at the butt. A similar slate needle was found in the Dalles-Deschutes region.⁶⁸

Chopper

A flat hatchet-shaped object (pl. XVIIh) of granite 6 inches long and 5 inches wide at the blade was found on the surface about ten miles south of Colville, Washington. The handle has been ground smooth; the blade, which had been chipped to an edge, is considerably blunted by use.

⁶² "Red catlinite pipes were traded ready-made from the Shuswap, since the Okanagon did not know how to work this stone." (Cline, *Southern Okanagon*, p. 65.)

⁶³ *Archaeology of the Yakima Valley*, p. 110.

⁶⁴ Ray, *Sanpoil and Nespelem*, p. 168.

⁶⁵ Smith, *Archaeology of the Yakima Valley*, p. 110.

⁶⁶ Smith, *Archaeology of the Yakima Valley*, p. 30, figs. 14, 16; Strong, *Archaeology of the Dalles-Deschutes Region*, fig. 25 a-b; Smith, *Archaeology of Lytton, British Columbia*, fig. 38.

⁶⁷ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 111.

⁶⁸ Strong, *ibid.*, p. 99, pl. 11f.

Mortars

Only two of these were found. One from the surface at site 22 is made of basalt. It is 8 inches square and 3 inches thick with a saucer-like depression 5 inches in diameter and 5/16 inch deep at the center. The depression seems to have been made by pecking rather than grinding. The other one came from the surface at site 43. It is made from an irregular-shaped granite boulder 16 by 11 by 5 inches with the depression 8 inches in diameter and 1/2 inch deep.

The scarcity of mortars seems to bear out the statement by Ray for the Sanpoil and Nespelem⁶⁹ that mortars were seldom made of stone but were usually of wood or hide, in which case they would not be preserved. Baskets lined with heavy neck leather and placed inside a slight cavity in a stone were used by the Southern Okanagon.⁷⁰ This would account for the shallow bowls of the mortars described above.

Whetstones

Two objects whose form and appearance suggest their use as whetstones were found. One of slate from the surface at site 23 is 7 inches long, rectangular in cross section (1 1/4 by 3/4 inches), and tapers toward one end. The broad sides show striations and grooves caused by abrasion (pl. XVI). The other is of argillite from the surface at site 31. It is also rectangular in cross section (1 1/4 by 3/4 inches) and is 7 1/2 inches long.

Arrowshaft Smoothers

Ten of these were found, all of sandstone, varying in texture but of the same general form. All except two came from burials. The two not from burials came from a burned area 26 inches deep along the edge of the bank at site 46. Three from site 51 came from burials removed by the disinterment project.

The general form for all specimens found by us is long, hemi-cylindrical, and sometimes tapering toward the ends. A groove the approximate size of an arrowshaft runs along the center of the flat side (pl. XIV h-j).

Strong⁷¹ found arrow smoothers of this type in the Dalles-Deschutes region but they were made from basalt, none from sandstone.

Smith found similar implements of sandstone in pairs in graves at Lytton and he believes they were used in pairs with the grooved faces together forming a hollow cylinder. "Held in such a position, with grooves fitted to an arrow shaft they would serve well, not only to smooth the shaft in the same way as when sand paper is used, but also to straighten it."⁷²

It may be significant to note that all except those from site 51 and one from site 46 came in pairs that could easily be fitted together in the manner suggested above.

Table 9 shows the distribution and size of the arrowshaft smoothers.

⁶⁹ Ray, *Sanpoil and Nespelem*, p. 41.

⁷⁰ Cline, *Southern Okanagon*, p. 58.

⁷¹ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 91, pl. 20b.

⁷² Smith, *Archaeology of Lytton, British Columbia*, p. 146, figs. 57-58.

TABLE 9
DISTRIBUTION OF ARROWSHAFT SMOOTHERS

Site	Burial	Number	Size
24.....	Burial 35	2	Both 3x1¼ inches
46.....	Burned area in bank cut	2	5x1¾ inches and 4½x2 inches
	Burial 24	1	2¾x1¾ inches
47.....	Burial 1	2	Both 4x2 inches
51.....	Previously opened burials	3	6x2 inches Fragment 1¾ inches wide Fragment 1⅝ inches wide

Turquoise Pendant

A turquoise pendant was found in the coiled basket in burial 10 at site 47 (pl. XII). It is ½ inch long, ⅜ inch wide at the base, tapering to 5/32 inch at the top, 1/16 inch thick, with a hole 1/16 inch in diameter at the top. The pendant is symmetrical and highly polished. No turquoise deposits are known to occur nearer than Nevada.

Incised Slate Fragments

Two irregularly shaped fragments of slate decorated by incised cross hatching were found at site 31. No suggestion of their use can be made from their fragmentary condition.

Ornamental or Toy Mauls

Two small (2 inches long) maul-shaped stone objects were found in burial 23, site 46. One has a notch around the top which suggests it was used for suspension. There is a possibility that they could have been used as sinkers for fish lines.

Mineral Pigment

Red ochre (turgite) used for paint was found at site 7A (burial 3), site 8 (burial 8), site 11 (trench 3, 24-36 inch level), site 24 (trench 4, depth 40 inches, and burials 10, 16, and 25), site 34 (trench 2, depth 10 inches), and site 46 (burial 24). From burial 24 at site 46 also came two pieces of dark red hematite-chalcedony mixture (a jasper high in hematite) which was probably also used for paint.

ARTICLES OF BONE AND HORN

A total of 248 articles of worked bone and horn was found. The types of implements and their number and distribution are shown in table 10. Most numerous are arrow and spear points, awls, double-pointed objects (possibly basketry tools), spatulate tools, harpoon points, flakers, and digging stick handles.

The ribs and long bones of deer and elk are the most common sources of material; deer and elk scapulae are used to a less extent. Deer and elk antler are used for flakers, wedges, digging stick handles, and harpoon points, and one artifact is probably made of moose antler. Bird bones are used for beads, tubes, and whistles. One whale bone club was found, as well as a spoon of mountain sheep horn and a finger ring of mountain goat horn. Pendants and beads are made from animal teeth of various kinds, particularly elk, and dice from beaver teeth.

Arrow Points (pl. VIII d-l)

Twenty-nine bone arrowheads were recovered, of which 20 came from graves at site 46. They range in length from 1 to 4 inches. In cross section they are generally rectangular with slightly rounded corners. The points are rounded in cross section and gradually tapering, while the bases are flattened in cross section and wedge-shaped, although a few have a rounded base or a tang. These arrow points have been cut or scraped rather than ground, for the marks of the scrapers are still visible. These points are very similar in form to those found by Smith in the Thompson River region⁷³ and the Yakima Valley,⁷⁴ but they are unlike those found by Strong in the Dalles-Deschutes region,⁷⁵ which, with one exception, are shouldered and have a stem like a stone arrow point.

Lance or Spear Points (pl. VIII a-c)

Five complete and five broken bone lance or spear points were found, of which all but three came from sites 46 and 47. These are similar in form to the bone arrow points but longer (4 to 5½ inches) and considerably heavier. For this reason they have been separated from the smaller arrow points, although it is by no means certain that they could not have been used as arrowheads. The spear points show more evidence of having been carefully ground than the arrow points. The base half of one (pl. VIIIb) is lighter and less decomposed than the point and shows evidence of having been tightly bound with some narrow material, perhaps sinew. Evidently this point was inserted into an arrow or spear shaft and held in place by binding. This appears to have been the method of attachment used for all of the bone arrow and spear points. Similar lance points were found in the Dalles-Deschutes region.⁷⁶

Arrowshaft Straighteners or Wrenches (pl. IX b-c)

Two arrowshaft wrenches were found, one at site 8, burial 1, and the other at site 47, burial 1, 7 inches and 8 inches long, respectively. Each is made from the first true rib of an elk, a hole ¾ inch in diameter being drilled at an angle of 45 degrees to the flat surface of the rib about 1 inch from the distal end. The specimen from site 47 has a second hole drilled in the same manner ½ inch

⁷³ *Archaeology of the Thompson River Region*, pp. 409-410, fig. 336.

⁷⁴ *Archaeology of the Yakima Valley*, figs. 7-8, 11-12.

⁷⁵ *Archaeology of the Dalles-Deschutes Region*, pp. 54-55, pl. 6 a-e.g.

⁷⁶ Strong, *Archaeology of the Dalles-Deschutes Region*, pl. 8 e-f.

TABLE 10
DISTRIBUTION OF BONE AND HORN ARTIFACTS

Site	2	7	8	11	24	31	40	43	45	46	47	Total
Arrow points.....	2	2	..	..	..	..	20	5	29
Spear points.....	1	..	1	..	1	3	4	10
Arrow wrenches.....	1	..	..	..	..	..	..	..	1	2
Harpoon points.....	1	..	..	..	..	5	2	8
Harpoon collars.....	2	..	2
Whale bone club.....	1	..	..	..	..	..	..	..	..	..	..	1
Antler knife handle.....	1	..	..	..	..	..	..	..	1
Knife with iron blade.....	1	1
Awls, long bone.....	1	1	..	4	4	1	2	..	..	11	..	24
Awls, scapula.....	..	1	..	..	6	..	..	..	..	4	..	11
Needles.....	3	..	..	..	..	..	..	3
Bodkins.....	..	1	1	1	6	..	..	..	..	..	..	9
Double-pointed implements.....	1	..	..	..	..	..	..	1	23	25
Digging stick handles.....	5	..	..	..	..	3	..	8
Digging stick tips.....	5	..	5
Digging implements.....	2	..	2
Flakers.....	1	..	..	..	..	8	..	9
Wedges.....	1	..	2	..	..	1	..	4
Flesher.....	1	..	1
Spatulates.....	14	6	20
Whistles.....	3	3
Horn spoon.....	1	..	..	..	..	1
Comb.....	1	1
Ring.....	1	..	..	..	..	..	..	1
Beads.....	5	..	..	..	..	1	..	6
Pendant.....	..	1	..	..	..	..	..	..	..	..	..	1
Incised ornament.....	1	1
Bone tube.....	1	..	1
Miscellaneous worked bone.....	1	4	14	..	..	..	..	16	..	35
Miscellaneous worked antler.....	1	3	2	..	1	1	..	11	4	23
TOTAL.....	2	4	5	15	52	1	7	1	1	109	51	248

proximally from the first. The articulation surfaces at the proximal end of these wrenches are smoothed off to form a convenient hand hold. An arrowshaft to be straightened was inserted into the hole, and the tool used as a lever or wrench to straighten the crooked portion. Arrow wrenches of wood, horn, and bone are mentioned for the Southern Okanagon.⁷⁷

Harpoon Points (pl. IX h-l)

Eight harpoon points were found in burials, one at site 24, five at site 46, and two at site 47. These are here called harpoon points rather than fish spear points because they are detachable from the shaft and possess an eye or flange for the attachment of a line. These harpoon points fall into three types: (a) large ($7\frac{1}{4}$ to $8\frac{1}{2}$ inches long), single barb, with a hole drilled $\frac{1}{4}$ inch to 1 inch from the base for attachment of a line (pl. IX h,j); (b) large (8 inches long), single barb, with $\frac{1}{4}$ -inch flange on the barb side 1 inch from the base for attachment of a line (pl. IX i); (c) small ($4\frac{1}{2}$ to 5 inches long), double barb, with a hole about 1 inch from base for attachment of a line (pl. IX k-l). All of the specimens are of antler except one of type (c) which appears to be of bone. The point shown in plate IXk and another not shown have been broken. The latter (from site 24, burial 35) was broken off just above the hole for line attachment, and has been notched in order to make the point still usable. The two identical type (b) points came from burial 23, site 46. Two of the type (a) points (pl. IXh and one quite similar to it) came from site 47, burial 1, while the third type (a) point came from site 46, burial 17. A type (c) point also came from burial 17 at site 46, another from burial 5, and the third from site 24.

In graves at Lytton, Smith⁷⁸ found 2 double-barbed antler harpoon points practically identical with our type (c) specimen shown in plate IXl. He found single-barbed bone points in the Thompson River region,⁷⁹ but it is not certain whether these were detachable, as there is no apparent way of attaching a line. However, they are decomposed and may originally have had flanges like our type (b). Harpoon points like ours are not reported from other parts of the Plateau.

Harpoon or Lance Collars

Two bone fragments were found which appear to be halves of rings or collars serving as couplings between the shafts and heads of lances or harpoons. They are similar to objects found by Strong in the Dalles-Deschutes region and are so classified by him.⁸⁰ However, both our specimens are so decomposed that the identification cannot be positive. One specimen from site 46, burial 38, appears to be the middle portion of a half of such a collar; the ridge or solid portion separating the shaft from the head is still present.⁸¹ The other fragment, from burial 17 at site 46, is one of the halves of a collar. One end flares outward and ends in a projecting rim which may have served to lash the collar to the shaft.⁸²

⁷⁷ Cline, *Southern Okanagon*, p. 53.

⁷⁸ *Archaeology of Lytton, British Columbia*, p. 137, fig. 20.

⁷⁹ *Archaeology of the Thompson River Region*, p. 411, fig. 337.

⁸⁰ *Archaeology of the Dalles-Deschutes Region*, pp. 60-61, pl. 6 j-n.

⁸¹ Similar to the one shown by Strong, *Archaeology of the Dalles-Deschutes Region*, pl. 6j.

⁸² In profile similar to those shown by Strong, *ibid.*, pl. 6 l.

Whale Bone Club (pl. IXa)

A carved club made of a whale rib was found in burial 12 at site 2. It is $22\frac{3}{4}$ inches long, $2\frac{1}{2}$ inches wide and $\frac{3}{4}$ inch thick, and was originally highly polished, although it is now much decomposed. The handle is elaborately carved on both sides with an animal head (bilaterally symmetrical) which is possibly the two-headed serpent of the Northwest coast. A hole is drilled below and back of the eye of the figure at the point where the ear opening would be. This hole was probably used for attaching a lanyard, a common practice on the Northwest coast. The style of carving appears to be that of the coast of British Columbia rather than of the Washington coast. This suggests trade via the Fraser River rather than up the Columbia. Similar whale bone clubs are reported for the Thompson River by Smith⁸³ but the handles are carved with anthropomorphic rather than animal heads. Although this was the only specimen found by us, others have been found in the region by local inhabitants. The county engineer of Ferry County is said to have found a similar club while excavating for the bridge over the Columbia at Kettle Falls. Strong found fragments of polished whale bone carved in coast style which were probably the remains of clubs.⁸⁴

Antler Knife Handle

At a depth of 90 inches in trench 1 at site 11 was found an antler handle which was probably used to haft a stone knife. It is made from a section of antler $6\frac{1}{2}$ inches long and $1\frac{1}{2}$ inches in diameter, being somewhat flattened in cross section. The blade of the knife, or possibly some other tool, was inserted in a hole at the end of the handle. Such handles were used by the Sanpoil and Nespelem.⁸⁵ A similar antler handle was found by Smith at Kamloops.⁸⁶

Knife (pl. IXg)

In burial 1 at site 47 was found a knife made by inserting an iron blade into the split edge of a deer rib. The bone handle is 6 inches long and the metal blade is 2 inches long and projects $\frac{3}{4}$ inch from the handle.

Awls (pl. VIII s-z)

We have classified the awls of our region into two types: (a) those made from scapulae of deer and smaller mammals (pl. VIII y-z), and (b) those made of split and unsplit long bones (pl. VIII s-x). Scapula awls are made by sharpening the spine and using the vertebral end of the spine and part of the vertebral border as a handle. They range in length from $3\frac{1}{2}$ to 6 inches and vary in the amount of superior and inferior fossae that have been cut away in shaping the awl. This type was found in burials at sites 7A, 24, and 46 only.

⁸³ *Archaeology of the Thompson River Region*, p. 422, fig. 359.

⁸⁴ *Archaeology of the Dalles-Deschutes Region*, p. 57.

⁸⁵ Ray, *Sanpoil and Nespelem*, p. 43.

⁸⁶ *Archaeology of the Thompson River Region*, fig. 348.

Awls made from split or unsplit long bones are more numerous and widely distributed than scapula awls, and vary more in size and form. In length they range from 4 to 7 inches; some are long and slender while others are short and thick. The more slender awls are made of the unsplit long bones of a small animal or the long bones of a deer split and ground sufficiently to obliterate the unevenness of the split surface and traces of the marrow cavity. Awls made from unsplit long bones have the point on one side of the marrow cavity, which causes a depression or groove in an otherwise smooth point. On some of the split awls there has been no attempt to smooth out the marrow cavity.

Two of our awls are made of a split half segment of a large long bone, forming an instrument like a hollow drill or apple corer. On most of these awls the epiphysis or nubbin of the bone has been left to serve as a handle or knob. One awl (from site 46) has been made from the proximal end of a deer ulna. A similar one is reported by Smith from Kamloops.⁸⁷ An unsplit awl from site 46 and another from site 47 have incised diagonal cross hatching near the base. Smith found at Kamloops an awl-like bone implement similarly decorated which he calls a headscratcher.⁸⁸ Headscratchers are used by Thompson girls during puberty ceremonies.⁸⁹

Needles (pl. VIII q-r)

Only three bone implements that could be definitely classified as needles were found. All came from site 24, two from trench 1 at depths of 28 inches (pl. VIIIq) and 34 inches, and one from burial 6 (pl. VIIIr). They are $2\frac{3}{4}$ inches, $3\frac{1}{8}$ inches, and $3\frac{1}{4}$ inches long, respectively. The first of these had been broken off at the eye and a new eye drilled. Similar bone needles are reported for the Dalles-Deschutes region,⁹⁰ the Thompson River region,⁹¹ and Lytton,⁹² but they do not appear to be common in the Yakima Valley⁹³ and none were found by Krieger in Grant County. They were used by the Sanpoil and Nespelem⁹⁴ and the Southern Okanagon.⁹⁵ Teit fails to indicate whether or not they were used by the Thompson Indians.

Bodkins (pl. VIII m-p)

Such articles could be classed as pins or small awls as well as bodkins. Four came from trenches at site 24 (11 inches to 29 inches deep), one from burial 10 at site 24, one from a depth of 12 inches at site 7, one from a depth of 24 inches at site 11, and one from burial 4 at site 8. They are $1\frac{3}{4}$ to $3\frac{1}{4}$ inches long, with a long, slender, very sharp point. Some have been broken and may have been needles. They could have been used as pins.

⁸⁷ *Archaeology of the Thompson River Region*, p. 420, fig. 457a.

⁸⁸ *Ibid.*, p. 424, fig. 362.

⁸⁹ Teit, *Thompson Indians of British Columbia*, p. 312.

⁹⁰ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 62, pl. 7 k-m,q,s.

⁹¹ Smith, *Archaeology of the Thompson River Region*, p. 421, fig. 358.

⁹² Smith, *Archaeology of Lytton, British Columbia*, pp. 148-149, figs. 76-78.

⁹³ Smith, *Archaeology of the Yakima Valley*, pp. 72-73.

⁹⁴ Ray, *Sanpoil and Nespelem*, p. 44.

⁹⁵ Cline, *Southern Okanagon*, p. 60.

Double-Pointed Implements (pl. X a-d)

This term is employed since no certain use can be attributed to these implements. They are long and quite slender, having a sharp point at each end. Twenty-three of these objects were found in one burial at site 47, the longest being 10 inches and the shortest 5½ inches. All specimens are ground and highly polished. They average ¾ inch in diameter at the point of greatest thickness, which is nearer one end. These implements must have been made from split sections of long bones of a very large animal, for they are solid bone, the cellular structure of the inner side having been completely rubbed away. In some cases the point at the larger end is rectangular in cross section instead of round, while at the opposite or smaller end the point is somewhat wedge-shaped. Only two specimens other than those mentioned from site 47 were found, one from site 46 and one from site 8. Two implements of this type were found by Smith in the Yakima Valley.⁹⁶ Three similar implements were found by Strong in the Dalles-Deschutes region.⁹⁷ He refers to their occurrence in California archaeological sites and mentions that their use as needles, pins, skewers, parts of fish hooks, awls, and game counters has variously been suggested. Dr. Verne F. Ray, who has examined our specimens, is of the opinion that they are probably awls for basket-making or skin work, and that they are unlike the game counters of our region, which are sharpened only at one end.

Antler Digging Stick Handles (pl. VII a-b)

Eight curved antler digging stick handles were found as follows:

Site 24	
Fill over burial 5.....	1
Burial 18	1
Burial 21	3
Site 46	
Burial 22	1
Burial 24	1
Burial 35	1
Total.....	8

These were used as cross-handles on wooden digging sticks. For insertion of the digging stick shaft a hole ½ inch to 1 inch in diameter is drilled through the antler about a third of the way from the base to the tip. The hole is tapered, so that when pushing down, the handle jams more tightly on the digging stick shaft. The three handles from burial 21 at site 24 bear incised designs at the tip; two have fan-like figures (fig. 13c; pl. VIIb), the other has a "V" and parallel lines (fig. 13d). Two specimens from site 46 are decorated with incised lines. The one from burial 22 bears parallel transverse rows of diagonally hatched designs at base and tip (fig. 13a; pl. VIIa). A remarkably similar antler digging stick handle having parallel rows of hatching on base and tip was found by Smith at Lytton.⁹⁸ The handle from burial 35 is decorated with a series of

⁹⁶ *Archaeology of the Yakima Valley*, figs. 9-10.

⁹⁷ *Archaeology of the Dalles-Deschutes Region*, p. 58, pl. 7 n.p.r.

⁹⁸ *Archaeology of Lytton, British Columbia*, pp. 137-138, fig. 21.

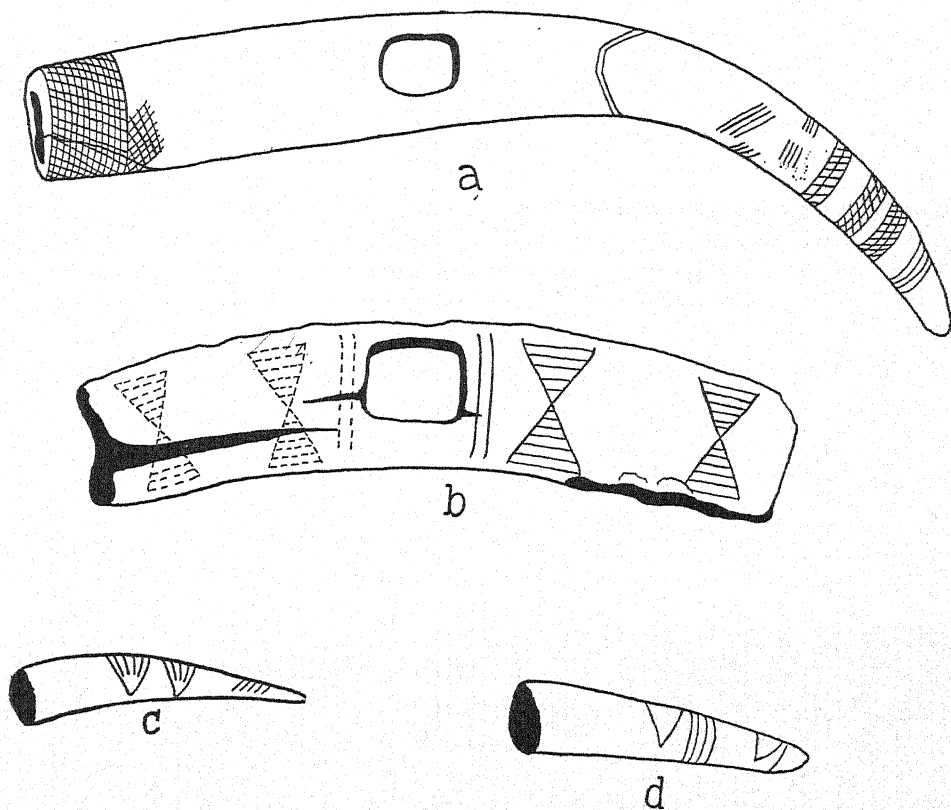


Figure 13. Incised Antler Digging Stick Handles

incised hourglass figures (fig. 13b). It is probable that these ran the entire length of the handle, but if so, they have been obliterated by the decomposition of the bone.

The two largest specimens (12 and 13 inches long) appear to be elk antler and the smaller specimens are deer antler.

No digging stick handles were found by Strong in the Dalles-Deschutes region. Handles of wood, horn, and antler are reported by Smith for the Yakima Valley.⁹⁹ Antler handles were found at Lytton¹⁰⁰ and on the Thompson River.¹⁰¹ The Thompson Indians use handles of wood or horn.¹⁰² The Southern Okanagon use digging stick handles of antler,¹⁰³ the Sanpoil and Nespelem handles of wood or antler,¹⁰⁴ the Nez Percé handles of wood or horn, or an oblong stone with a transverse groove in the middle lashed at right angles to the digging stick shaft.¹⁰⁵

Antler Digging Stick Tips

Five two-pronged or bifurcated pieces of antler were found. These are grooved or split at the base for hafting, and it is supposed that they were used to tip digging sticks, although this is not certain. All of these were found at site 46, three being from burial 17 and two from burial 24. The largest of these, 6½ inches long and 3 inches between tips, is made from a two-pronged antler, probably of moose. The lower end is split for a distance of 1 inch for hafting. Both faces have decorations consisting of incised chevrons, parallel straight lines, and rows of small triangles (fig. 14a; pl. VIIIf). Another specimen is a small two-pronged deer antler 3½ inches long and 2 inches between the points, and is unworked except for the deep groove in the lower end for the purpose of hafting. The other three specimens are not pronged antler tips but have been cut from sections of antler so as to have bifurcated tips. They also show evidence of hafting, but are less certainly digging stick tips. These specimens might be thought to be fragments of netting shuttles if the bases did not show evidence of having been hafted. The largest of these is 4½ inches long, 1¼ inches wide, and the tips are ½ inch long. One edge near the tip bears five shallow notches with parallel lines running from them diagonally across the tip (fig. 14b). The second (3¼ inches long, tips ¾ inch long) bears incised interlocking V-shaped figures on one face. The third (3¼ inches long) is badly decomposed but appears to be undecorated.

Possible Digging Implements

Two antler objects possibly used as digging implements were found. The one from burial 23 at site 46 is 10 inches long, 1 inch wide and ¾ inch thick. One end curves and the tip is flattened and rounded like a spatula. The other

⁹⁹ *Archaeology of the Yakima Valley*, p. 35, fig. 126.

¹⁰⁰ *Archaeology of Lytton, British Columbia*, pp. 137-138.

¹⁰¹ *Archaeology of the Thompson River Region*, p. 411.

¹⁰² Teit, *Thompson Indians of British Columbia*, p. 231, fig. 212.

¹⁰³ Cline, *Southern Okanagon*, p. 58.

¹⁰⁴ Ray, *Sanpoil and Nespelem*, p. 98.

¹⁰⁵ Spinden, *Nez Percé Indians*, p. 200, fig. 33.

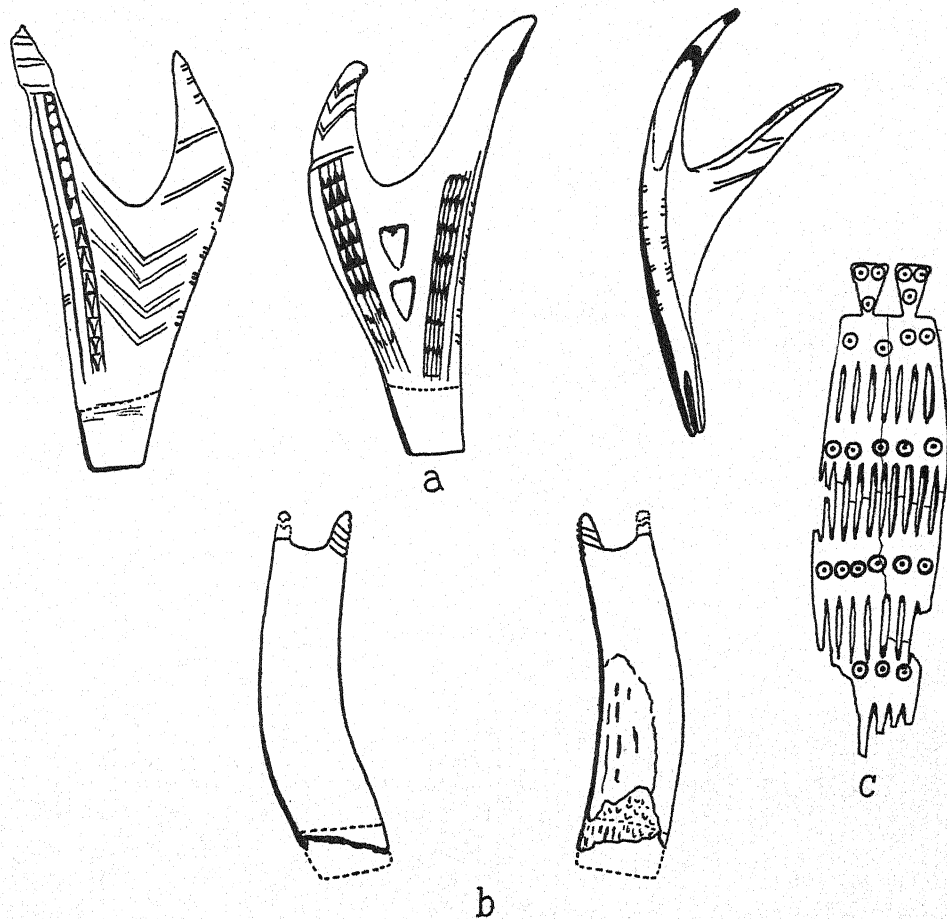


Figure 14. Incised Antler Digging Stick Tips and Bone Ornament

end is narrow and thicker with the edges squared as if to fit into a cross handle. The other specimen, from burial 35 at the same site, is 12 inches long, $\frac{3}{4}$ inch wide and $\frac{5}{8}$ inch thick at the thickest section. In form it is similar to the first specimen.

Flakers (pl. VII g-i)

Nine flakers made from sections of elk or deer antler were found as follows:

Site 24 (pit A, depth 36 inches)	1
Site 46	
Burial 17	2
Burial 22	1
Burial 24	2
Burial 35	3
Total	9

Five of these are made from the base of deer antlers, cut off 3 to 6 inches from the base, and ground on one side to a point. The base diameter varies from $\frac{3}{4}$ inch to $1\frac{1}{2}$ inches. The mushroom-like attachment or button of the base is left to serve as a base to rest in the palm when using the implement. Another flaker is cut from a large antler near the tip, and one is from the tip of a small antler prong. Two others are made from split sections of antler or possibly bone. The tips of all of these flakers are flat in cross section and the flaking edge is straight.

Wedges (pl. VII c-e)

Four antler wedges were found. These were probably used for splitting wood. A specimen 5 inches long and $1\frac{1}{4}$ inches in diameter at the base, made from a deer antler base, was found at site 46, burial 35. The distal end is ground down on both sides to an edge wedge-shaped in profile. A wedge cut from a section of antler and ground on both sides to an edge was found at site 24, burial 35. It is $3\frac{1}{2}$ inches long, $\frac{3}{4}$ inch wide, and has a maximum thickness of $1\frac{1}{4}$ inches. These two wedges are very similar to ones found by Smith at Lytton.¹⁰⁶ Two thinner wedges ground from a split section of antler (probably elk) were found at site 40 at depths of 46 and 58 inches, respectively. The edge of one comes down to a blunt point; the edge of the other is flattened. The former is 3 inches long, $1\frac{1}{4}$ inches wide, with a maximum thickness of $\frac{1}{2}$ inch. The latter is 3 inches long, $1\frac{1}{4}$ inches wide, with a maximum thickness of $\frac{3}{8}$ inch. Antler wedges are also reported for the Thompson River region,¹⁰⁷ the Yakima Valley,¹⁰⁸ and the Dalles-Deschutes region.¹⁰⁹

Flesher or Scraper (pl. IXf)

A bone flesher or scraper was found in burial 2 at site 46. It is 9 inches long, $1\frac{1}{2}$ inches wide at one end, and tapers to $\frac{1}{2}$ inch at the other. It is made from

¹⁰⁶ *Archaeology of Lytton, British Columbia*, p. 141, figs. 36-37.

¹⁰⁷ Smith, *Archaeology of the Thompson River Region*, fig. 345.

¹⁰⁸ Smith, *Archaeology of the Yakima Valley*, fig. 39.

¹⁰⁹ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 70, fig. 10 a-c.

a split section of deer tibia, the proximal end being broader than the other, probably to serve as a handle. The distal end is ground flat, giving a sharp edge, suggesting the form of a paper knife. Smith found two similar implements at Kamloops which he believes are sap-scrapers.¹¹⁰

Spatulate-Shaped Objects (pl. IX d-e)

Fourteen of these objects were found at site 46 and six at site 47. All except two are made from deer or elk ribs. They range in length from 5 to 9 inches. They are made by splitting a rib and grinding down the split surface until the marrow cavity is obliterated on the distal half. The proximal end, which is much thicker, is left unground, forming a handle. The two specimens not of ribs are made from long bone fragments, and are similar to the others in form except that they are straight while those made from ribs are curved. These spatulate objects resemble in shape the two antler objects suggested above to be digging implements, but the former are smaller, thinner at the pointed end, and thicker at the blunt or proximal end. Possibly these implements were used for fleshers or sap-scrapers.

Bone Whistles (pl. IXm)

Three bone whistles were found at site 47, two in burial 1 and one in burial 8. They are made from the ulna of the whistling swan (*Cygnus columbianus*). The bone is cut off about 1 inch from the proximal end, and the whistle notch is placed about 1 inch from the resulting open end. One of the whistles from burial 1 has a shallow incised groove running from the notch to the distal end. The specimen from burial 8 is broken off just below the notch. The two whole specimens are 8 and 8½ inches long, respectively.

Horn Spoon

A fragmentary spoon made probably from mountain sheep horn was found at site 40 (trench 4) at a depth of 30 inches. It has the form of a sugar scoop, being 2 inches wide, 4½ inches long and 1 inch deep. The handle is missing.

Comb (pl. Xe)

In burial 1 at site 47 were found 11 small pieces of carefully worked bone which are evidently the teeth of a comb. The over-all length is 3½ inches; the teeth proper are 1⅞ inches long, and the base is 1⅝ inches long. The base is broader and thinner than the tooth, the former being 1/32 inch thick and the latter ⅓ inch thick. Evidently the bases were placed together and bound, giving a fan-shaped comb. Similar combs were made by the Thompson,¹¹¹ Southern Okanagon,¹¹² and Sanpoil and Nespelem,¹¹³ but of wood rather than bone.

¹¹⁰ *Archaeology of the Thompson River Region*, p. 412, fig. 340.

¹¹¹ Teit, *Thompson Indians of British Columbia*, p. 224, figs. 201, 202, 203.

¹¹² Cline, *Southern Okanagon*, p. 49, fig. 15.

¹¹³ Ray, *Sanpoil and Nespelem*, p. 54, pl. 2c.

Ring (pl. Xg)

A horn finger (?) ring was found at site 24 in trench 3 at a depth of 19 inches. Its outside diameter is 1 inch, and it is $\frac{1}{8}$ inch thick and $\frac{1}{4}$ inch wide. The material is compact, jet black horn, and probably comes from a cross section of mountain goat horn. It is evenly finished and highly polished, especially on the inside surface, which suggests that it was worn as a finger ring.

Beads (pl. Xi-k)

Five bone beads came from site 24. One from burial 1 is a segment of a wing bone of a large bird, $1\frac{1}{2}$ inches long and $\frac{3}{8}$ inch in diameter (pl. Xi). It is decorated with longitudinal rows of incised chevrons in alternating directions, and double incised lines around both ends. Three smaller (1 inch long and $\frac{3}{16}$ inch in diameter) tubular beads of bird bone came from burial 25. A tubular bead of bird bone $1\frac{1}{4}$ inches long and $\frac{1}{4}$ inch in diameter came from burial 15 (pl. Xk). From burial 22 at site 46 came a bird bone bead $\frac{1}{2}$ inch long and $\frac{5}{16}$ inch in diameter (pl. Xj). It is tapered at the ends, giving it the shape of a barrel.

Bone Pendant (pl. Xh)

From burial 3 at site 7A came a bone pendant resembling an elk upper canine tooth in size and shape. It appears to have been made in imitation of an elk tooth. Two holes are drilled near the upper or thinner end. It is $1\frac{3}{10}$ inches long, $\frac{11}{16}$ inch wide and $\frac{1}{4}$ inch thick.

Bone Ornament (fig. 14c; pl. Xf)

From burial 8 at site 47 came a carved bone ornament, probably used in the hair. It is $6\frac{1}{2}$ inches by $1\frac{1}{2}$ inches and $\frac{1}{16}$ inch thick. It is decorated by four transverse rows of filagree, interspersed with transverse rows of incised dots within circles, similar to the circular markings on beaver teeth and bone dice. According to Ray,¹¹⁴ these dots and circles were made by twirling a stone fragment with two points, one acting as a pivot. One end of the ornament is carved to give the effect of two tongues, each bearing two dots within circles at the end. The other end was probably finished in the same manner, but is missing. One face of the ornament is well preserved, showing the incised decorations mentioned. The other face is spongy and decomposed, but still shows traces of the dots and circles arranged as on the other face.

Bone Tube

From burial 32 at site 46 came a bone tube 3 inches long and $\frac{1}{2}$ inch in diameter from the ulna of a large bird (eagle or swan).

¹¹⁴ *Sanpoil and Nespelem*, p. 159.

Miscellaneous Unclassifiable Worked Bone

This category includes 35 pieces of worked bone not classifiable as any of the types already described. Many of the specimens are broken implements too fragmentary to be identified. These include possible arrow or lance points, needle, and awl fragments. A few bear incised decorations consisting of parallel lines and hatching.

Miscellaneous Antler Fragments

Twenty-three fragments of antler, nearly all showing evidence of having been worked, were found at various sites. Eight are antler tips (six from site 46, two from site 24). The remaining pieces consist of fragments of deer and elk antler, and one is possibly a portion of moose antler.

Teeth and Claws

Elk Teeth. Two hundred and twenty-two upper canines and one upper incisor of elk, perforated at the root end for suspension, were found. The distribution was as follows:

	Location	Canine	Incisor	Decorated
Site 7A.....	Burial 8	12	..	..
Site 8.....	Burial 9	23	..	3
Site 13.....	Burial 1	6	..	..
Site 24.....	Burial 11	67	1	3
	Burial 25	80	..	2
Site 45.....	Trench 2 (Depth 71 in.)	1	..	..
Site 48.....	Burial 2	32	..	..
Site 51.....	.....	1	..	..
TOTAL.....		222	1	8

A few of the teeth, as shown in the above table, are decorated with parallel incised lines on the lower or biting edge. One tooth from site 24, burial 25, has a rectangular figure incised on the outer face. The teeth from site 24, burial 11, and site 48, burial 2, have been stained green by copper salts from copper objects in these burials. The former are well preserved, retaining the smoothness and high polish which undoubtedly are the result of long wear in the form of a necklace. All the other teeth are less well preserved, showing pitting and flaking of the outer enamel layer.

Beaver Teeth (pl. X p-u). Forty-five whole and fragmentary beaver incisors were found. Five of these were decorated on the medial or flat side with incised dots, and nine similarly with incised lines, for use as dice. The distribution is shown in table 11.

TABLE 11
DISTRIBUTION OF BEAVER TEETH

	Location	Incised Upper Incisors		Not Incised*	
		Dots	Lines	Upper Incisors	Lower Incisors
Site 7A.....	Burial 3	2	3	1	..
Site 24.....	Burial 21	1	2	..	..
	Burial 23	1	2	..	..
	Burial 25	1	2	2	..
	Burial 35	..	..	..	4
Site 46.....	Burial 17	..	..	2	..
	Burial 23	..	..	7	7
	Burial 24	..	..	5	..
Site 47.....	Burial 5	..	..	2	..
	Burial 8	..	..	..	1
TOTALS.....		5	9	19	12

*Some of the fragmentary and apparently undecorated teeth have lost the medial face, which is the one used for decoration, and hence they may have been decorated originally.

The pattern of dots is shown in plate X t-u. The dots were originally filled with red pigment. Designs of incised straight lines are of two types: (a) 4 or 5 groups of parallel lines running transversely and at right angles to a tangent to the curve of the tooth, each group containing 2 to 4 lines (pl. X r-s); (b) 4 or 5 irregularly arranged groups of parallel lines each group containing 2 to 5 lines and alternating diagonally across the tooth to give a chevron effect (pl. X p-q). The distribution of these types is as follows:

	Location	Dots	Lines (type a)	Lines (type b)
Site 7A.....	Burial 3	2	2	1
Site 24.....	Burial 21	1	1	1
Site 24.....	Burial 23	1	..	2
Site 24.....	Burial 25	1	..	2

It is thus probable, although not certain, that a set of dice consisted of three or four teeth, one with dots and the others with type (a) or (b) lines. The sample is too small to determine whether there was a patterned combination of types (a) and (b) in a set of dice or whether the differences noted are merely fortuitous. Three fragmentary undecorated beaver teeth were found in Wakemap mound in the Dalles-Deschutes region.¹¹⁵ No beaver tooth dice were found by Smith in the Yakima Valley,¹¹⁶ nor by Krieger at Wahluke. Dice similar to ours were found at Lytton, but made from woodchuck teeth. These were decorated (a) with incised dots and (b) with incised transverse or diagonal lines, and were often covered with red ochre. Sets consisted of four dice.¹¹⁷ Beaver tooth dice with similar markings were found by Smith at Kamloops on the Thompson River.¹¹⁸ Teit describes the beaver tooth dice used by the Thompson Indians as follows: a set consisted of four dice, one with incised dots, two with incised diagonal lines forming a zig-zag pattern (our type b), and one with incised transverse lines (our type a) and bound in the center with sinew.¹¹⁹ It is impossible to tell whether our type (a) teeth have been bound with sinew. Beaver tooth dice are also reported for the Southern Okanagon, although bone dice similarly marked are more common.¹²⁰ Both beaver tooth and bone dice, in sets of four, were used by the Sanpoil and Nespelem. They are described by Ray as follows:

One side of each of the bones or teeth was incised with four concentric-circle or dot and circle designs . . . , the other side with one to three groups of stripes. . . . The incisions were filled with red or black pigment. The dots and circles were made by twirling a stone fragment with two points, one acting as a pivot.¹²¹

It is seen that the Sanpoil and Nespelem practice of decorating beaver teeth on two sides and their arrangement of dots and lines on the teeth are different from the methods of making dice found in archaeological deposits in what is now Sanpoil and Nespelem territory (sites 7A and 24) and on the Fraser and Thompson rivers, and also differ from the practices of the Thompson Indians.

Muskrat Teeth. Three muskrat upper incisors were found in burial 10 at site 24. These are similar in shape to beaver teeth but much smaller. They show no evidence of having been decorated.

Bear Tooth (pl. XI). In burial 24 at site 46 was a bear canine tooth notched at the root end, probably for suspension.

Lynx Tooth (pl. Xm). In a test trench at the old Dobson ferry landing one mile below and across the Columbia from Marcus was found an upper canine tooth of lynx, perforated at the root end for suspension.

Bear Claws (pl. Xo). In burial 15 at site 24 were fifteen bear claws perforated at the base for suspension.

Cougar Claws (pl. Xn). From burial 8 at site 47 came four claws, probably of cougar. These are not perforated but could easily have been suspended by

¹¹⁵ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 58.

¹¹⁶ *Archaeology of the Yakima Valley*, p. 105.

¹¹⁷ Smith, *Archaeology of Lytton, British Columbia*, p. 153, fig. 100.

¹¹⁸ *Archaeology of the Thompson River Region*, p. 428.

¹¹⁹ *Thompson Indians of British Columbia*, p. 272, fig. 256.

¹²⁰ Cline, *Southern Okanagon*, pp. 187-188.

¹²¹ *Sanpoil and Nespelem*, p. 150, fig. 21.

tying a cord around the knobby bases. At site 24 in trench 1 at a depth of 3½ inches was found a feline claw, probably of bobcat, perforated for suspension.

Bird Beak Bones

Seven bird beak bones from the Western pileated woodpecker (*Ceophloeus pileatus picinus*) were found in burial 6 at site 24. From the position of these in the burial it is probable that they were strung through the nostril openings and served as a necklace. There was no evidence that these specimens had been worked.

Bear Penis Bones

Five bear penis bones showing no signs of having been worked were found, three from burial 5 and one from burial 35 at site 24, and one from burial 10 at site 46. Such bones were used for making awls among the Southern Okanagon.¹²² At Kamloops Smith found two bear penis bones decorated with incised lines and with eyes, similar to the eyes in bone needles, drilled in them.¹²³ It is possible that the unworked penis bones in our burials have some magical significance.

ARTICLES OF SHELL

Large numbers of shell objects of several types, made from different kinds of shell, were found throughout our area. These consist of dentalium and olivella beads, disc beads of shell, abalone pendants, shell rings, and great quantities of river clam shells. The distribution of shell objects is shown in table 12. A detailed description of methods of stringing shell beads is given in a later section.

TABLE 12
DISTRIBUTION OF SHELL OBJECTS

Type	SITE													Total
	2	7	8	11	22	24	46	47	48	50	51	Kettle Falls Is.	Misc.	
Whole Dentalia	5	26	..	..	2	862	6	112*	..	..	20	94	13	1140
Segmented Dentalium Beads . . . . .	..	463	..	2	..	1467	..	1925†	57	..	236	....	..	4150
Olivella Beads . . . . .	..	13	22	..	..	263	..	173	2	29	21	18	..	541
Disc beads . . . . .	..	2	..	..	..	14	..	..	9	109	..	6	..	140
Pendants	2	1	..	..	..	5	2	7	..	..	1	....	..	18
Rings . . . . .	..	..	..	..	..	..	..	..	..	3	..	....	..	3
TOTAL	7	505	22	2	2	2611	8	2217	68	141	278	118	13	5992

*Of these 100 were in basket from burial 10; the number is an estimate.

†Of these 1300 were strung in coils in the basket in burial 10; the number is an estimate.

¹²² Cline, *Southern Okanagon*, p. 60.

¹²³ *Archaeology of the Thompson River Region*, p. 430, fig. 375.

Dentalia

Whole Dentalia (pl. XI g,n). Dentalium shells $\frac{3}{4}$ inch or longer are classified as whole dentalia, even though many of these have had a small section of the small end or tip removed to permit stringing. Altogether 1140 whole dentalia were recovered. Their distribution is as follows:

Site 2
Burial 12—5, unstrung.

Site 7A
Burial 3—6, unstrung, of which four are incised with transverse lines.
Burial 4—1, incised with transverse lines.
Burial 5—19, strung with dentalium segments.

Site 22
2 in sand blowout.

Site 24 (total of 826)
Burial 2—45, strung with dentalium segments on fiber cord; one incised with transverse lines.
Burial 6—126, strung on fiber cord with tubular copper beads; one incised with transverse lines.
Burial 11—5, unstrung, associated with dentalium segments.
Burial 20—9, unstrung.
Burial 21—338, strung in double strands on buckskin (type 4a, fig. 16b); associated with dentalium segments and glass beads.
Burial 25—53, probably type 6a or 6b stringing (fig. 16 f-g).

Site 46
Burial 4—6, unstrung.

Site 47
Burial 3—12, unstrung.
Burial 10—small coiled basket containing 100 whole dentalia and 1300 strung dentalium segments; types 6a and 6b stringing (fig. 16 f-g) for the whole dentalia.

Site 51
Burial 1—20, unstrung.

Kettle Falls Island
Disturbed burials—94, unstrung.

One mile below Detillion bridge on the north bank of the Spokane
Disturbed burials—13.

Dentalium Segments (pls. XI f,j; XII d)

A total of 4150 dentalium segments was found, ranging in length from $\frac{1}{32}$ inch to $\frac{3}{4}$ inch, the majority being $\frac{1}{16}$ inch to $\frac{1}{2}$ inch long. Some were strung alone, others with whole dentalia, tubular copper beads, or glass beads. Their distribution was as follows:

Site 7A
Burial 4—453, strung on fiber cord with tubular copper beads.

Site 7B
Burial 5—10, unstrung.

Site 11
Trench 4 (depth 48 inches)—1.
Trench 5 (depth 34 inches)—1.

Site 24
Burial 2—151, strung with tubular copper beads.
Burial 3—2, unstrung.
Burial 5—28, unstrung.
Burial 6—270, unstrung.
Burial 13—28, unstrung.
Burial 15—4, unstrung.
Burial 16—66, unstrung.
Burial 17—78, unstrung.

Burial 21—707, unstrung.
Burial 27—16, unstrung.
Trench 2 (depth 14 inches)—11, strung on fiber cord.

Site 47 (total of 1925)
Burial 1—625, strung with copper tubular beads.
Burial 10—coiled basket containing 100 whole dentalia and 1300 dentalium segments strung alone on fiber cord.

Site 48
Burial 2—57, unstrung.

Site 51
Burial 1—186, strung with tubular copper beads.
Burial 2—50, strung with tubular copper beads.

Olivella Beads (pl. XI o-q)

In all, 541 olivella shells with the spires ground off for stringing were found. No strung olivella beads were found. As shown in plate XI, there is considerable size range, the beads varying in length from $\frac{3}{8}$ inch to $1\frac{1}{8}$ inches. Their distribution was as follows:

Site 7A
Burial 4— 13, small.

Site 8
Burial 2— 8, small.
Burial 11— 14, small.

Site 24 (total of 263)
Burial 13— 40, small
Burial 19—201, small.
Burial 22— 5, large.
Burial 23— 15, large.
Burial 30— 2, large.

Site 47 (total of 173)
Burial 1— 88, large.

Burial 3— 81, large.
Burial 6— 3, small.
Burial 9— 1, large.

Site 48
Burial 2— 2, small.

Site 50
Burial 3— 2, small.
Burial 2— 27, small.

Site 51
Disturbed burials—20 small; 1 large.

Kettle Falls Island
Disturbed burials—18 large.

Disc Beads (pl. XI k-m)

In all, 140 disc beads of shell were found. River clam and olivella and other marine shells are the materials used.

River Clam (*Margaritifera margaritifera faleata*). Two beads from site 7A (burial 3) and six from a disturbed burial on Kettle Falls Island are made of river clam. They are $\frac{3}{8}$ to $\frac{1}{2}$ inch in diameter and $1/32$ inch to $3/32$ inch thick.

Olivella (pl. XII). In burial 3 at site 50 were 53 very small disc beads which appear to be made of olivella shell. They are $5/32$ inch in diameter and $3/64$ inch thick. They are ground very smooth and are uniformly round.

Unidentified marine shells. From burial 2 at site 24 came 14 disc beads of unidentified shell (pl. XIIm). They are $5/16$ inch in diameter, $\frac{1}{8}$ inch thick, smoothly ground, and uniformly round. Possibly they are made of rock scallop. In burial 2 at site 50 were 56 disc beads $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter and $1/16$ inch thick (pl. XIk). Their surfaces are very irregular and they are not uniformly round. The material is much harder than river clam shell and does not foliate in the same manner. In texture it is like olivella, but the shell is thicker.

Rings (pl. XI a-b)

Three shell rings were found in burial 3 at site 50. One has an outside diameter of $2\frac{3}{4}$ inches, an inside diameter of 2 inches, and is $\frac{3}{8}$ inch thick. The other two have an outside diameter of $1\frac{7}{8}$ inches, an inside diameter of 1 inch, and are $5/16$ inch thick. They are made from the purple-hinged or rock scallop (*Hinnites giganteus*) which is found along the Pacific Coast from Alaska to Mexico.

Pendants (pls. XI c-e,h; XIIa)

Eighteen shell pendants were found. A few are of river clam (pl. XI d-e), one is probably a section of salt water clam, and the remainder are of abalone (*Haliotis*) (pls. XI c,h; XIIa). They vary in size from 1 inch by $\frac{1}{2}$ inch to 5 inches by $3\frac{3}{4}$ inches. The most common shapes are oval, triangular, rectangular, and trapezoidal, and generally but not invariably the hole for suspension is drilled on the shortest side or narrowest end. The distribution was as follows:

Site 2

Surface—1, abalone.

Burial 2—1, salt water clam (?).

Site 7A

Burial 4—1, river clam.

Site 24

Burial 11—2, river clam (?).

Burial 15—1, abalone.

Burial 23—1, river clam.

Burial 25—1, material uncertain.

Site 46

Burial 24—2, abalone (?).

Site 47

Burial 1—4, abalone.

Burial 3—1, abalone.

Burial 10—2, river clam

Site 51

Burial 1—1, abalone.

Marine Worm (?) Shell

A tubular shell $2\frac{3}{4}$ inches long and $\frac{3}{8}$ inch in diameter was found in burial 1 at site 8. There are two short, shallow incisions on one side, as if a cut had been begun. There is no other evidence of its having been worked. It appears to be the shell of a marine worm.

Unworked Clam Shells (Shell Middens)

Varying quantities of river clams [*Margaritifera margaritifera falcata* (Gould)] were found in the occupation deposits at sites 11, 12, 24, 31, 33, 34, 38, 40, 41, 43, 45, and 49. The most extensive deposit was at site 41, where there were two shell middens 2 feet thick and 40 feet in diameter. Evidently the inhabitants of these sites made considerable use at times of river clams for food. Similar river clam shell deposits have been reported along the Okanagon River,¹²⁴ at Wahluke,¹²⁵ in the Yakima Valley,¹²⁶ and smaller deposits have been found in the Dalles-Deschutes region¹²⁷ and along the Snake.¹²⁸ River clams were used as food to some extent by the Sanpoil and Nespelem¹²⁹ and Okanagon, but were not eaten by the Thompson.¹³⁰ The following information on the Okanagon practices is pertinent.

Mussels . . . were of first importance [as a starvation food in winter]. Large beds of these were found in the Okanagon River every three or four miles. . . . Starving people would camp by these beds and gather them with a forked stick through holes in the ice if wading was impossible. They were easily opened and were boiled. Some few people liked them so much that they gathered and baked them in times of plenty, though never in hot weather. Shell heaps have been reported all along the Okanagon River.¹³¹

¹²⁴ Cline, *Southern Okanagon*, p. 29.¹²⁵ Krieger, *Prehistoric Pit House Village Site*, p. 13.¹²⁶ Smith, *Archaeology of the Yakima Valley*, pp. 34-35.¹²⁷ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 71.¹²⁸ Spinden, *Nez Percé Indians*, p. 177.¹²⁹ Ray, *Sanpoil and Nespelem*, p. 58.¹³⁰ Teit, *Thompson Indians of British Columbia*, p. 231.¹³¹ Cline, *Southern Okanagon*, p. 29.

Such a lack of intensive use of river clams for food would account for the generally sporadic occurrence of shell deposits at our larger habitation sites (e.g., sites 11 and 24). This would explain the larger shell middens, like the one at site 41, which lack evidence of intensive occupation, as temporary habitation sites located near large clam beds and usually occupied only for brief periods during times of famine.

Summary and Comparisons

In the upper Columbia region shells were used for a variety of ornaments. Beads were made of whole and segmented dentalium shells and olivella shells. A few of the dentalium shells bear incised designs. Probably some of the dentalium shells were used for nose ornaments and ear pendants. Disc beads were made from river clams, and from olivella and other marine shells. Pendants were made from river clam shells, abalone, and possibly salt water clams. Large rings were made from the rock scallop (*Hinnites*).

Extensive use of shells for ornaments is found throughout the Plateau and along the whole Pacific Coast. Dentalium beads are abundant in archaeological deposits at Lytton,¹³² along the Thompson River,¹³³ and in the Yakima Valley,¹³⁴ and are present in small numbers at Wahluke,¹³⁵ the Dalles-Deschutes region,¹³⁶ and the Nez Perce region.¹³⁷ Incised dentalium shells are reported for Kamloops on the Thompson River,¹³⁸ Wahluke,¹³⁹ the Yakima Valley,¹⁴⁰ and the Nez Percé country.¹⁴¹ In recent times dentalium shells were used by the Thompson Indians,¹⁴² the Okanagon,¹⁴³ and the Sanpoil and Nespelem.¹⁴⁴ According to Smith,¹⁴⁵ dentalium shells in British Columbia were imported not up the Fraser River but from north of Vancouver Island across the mountains through the Chilcotin country and thence down the Fraser. Teit¹⁴⁶ states that the Lower Thompson Indians traded dentalia to the coast tribes, by which he probably means the tribes at the mouth of the Fraser. The Okanagon traded extensively with the Thompson,¹⁴⁷ and no doubt got their dentalia from them. Smith¹⁴⁸ is of the opinion that dentalia did not reach the Yakima Valley from the Fraser River but were probably brought from the south.

¹³² Smith, *Archaeology of Lytton, British Columbia*, pp. 134, 153.

¹³³ Smith, *Archaeology of the Thompson River Region*, pp. 425, 427.

¹³⁴ Smith, *Archaeology of the Yakima Valley*, pp. 90-91.

¹³⁵ Krieger, *Prehistoric Pit House Village Site*, p. 19.

¹³⁶ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 72.

¹³⁷ Spinden, *Nez Percé Indians*, p. 181.

¹³⁸ Smith, *Archaeology of the Thompson River Region*, p. 427, fig. 379.

¹³⁹ Krieger, *Prehistoric Pit House Village Site*, p. 19.

¹⁴⁰ Smith, *Archaeology of the Yakima Valley*, p. 91, figs. 117-118.

¹⁴¹ Spinden, *Nez Percé Indians*, p. 181.

¹⁴² Teit, *Thompson Indians of British Columbia*, pp. 222-223.

¹⁴³ Cline, *Southern Okanagon*, p. 45.

¹⁴⁴ Ray, *Sanpoil and Nespelem*, p. 50.

¹⁴⁵ Smith, *Archaeology of Lytton, British Columbia*, p. 134.

¹⁴⁶ Teit, *Thompson Indians of British Columbia*, p. 259.

¹⁴⁷ Teit, *Thompson Indians of British Columbia*, p. 258.

¹⁴⁸ Smith, *Archaeology of the Yakima Valley*, p. 91.

Olivella beads were common at Lytton,¹⁴⁹ absent in the Thompson River region,¹⁵⁰ and present in small numbers at Wahluke,¹⁵¹ in the Yakima Valley,¹⁵² and in the Dalles-Deschutes region.¹⁵³ They are not reported for the Thompson, Okanagon, or Sanpoil and Nespelem.

Shell disc beads are reported from Kamloops,¹⁵⁴ the Yakima Valley¹⁵⁵ and Wahluke.¹⁵⁶ A few disc beads of olivella shell were found in the Dalles-Deschutes region.¹⁵⁷ The Okanagon made beads and ear rings from river clams.¹⁵⁸ The Sanpoil and Nespelem made ear rings but not disc beads from river clams. Beads were ground from salt water clams imported from the coast.¹⁵⁹

No large shell rings like ours have been reported from other parts of the Plateau.

Abalone pendants are reported from Lytton,¹⁶⁰ the Thompson River Region,¹⁶¹ Wahluke,¹⁶² the Yakima Valley,¹⁶³ the Dalles-Deschutes region,¹⁶⁴ the Nez Percé region,¹⁶⁵ and among the Thompson Indians.¹⁶⁶ This wide distribution of abalone shells is evidence of the extent and effectiveness of Indian trade in prehistoric times, since the shell is marine and in this species does not occur north of the south coast of Oregon.

ARTICLES OF HIDE

A few objects of hide were found in burials at sites 8, 24, 48, 51, and in a disturbed burial on Kettle Falls Island.

Site 8

In burial 11 was a fragment of deer hide with the hair left on.

Site 24

In burial 17 were found the following:

1. A small pouch (about 5 inches long) made of the very thin skin of a small fur-bearing animal. Fragments of the soft brown hair still adhere to the skin, which is probably from chipmunk or ground squirrel. The decorated sticks in this pouch are described under Articles of Wood (see p. 101).
2. A piece of heavy hide with the hair removed, probably of bison.
3. A piece of thin skin about 1 foot square consisting of three pieces sewed together with sinew. Wisps of soft brown hair adhere to the skin. This is probably rabbit skin, and the object might have been a cap or bag.

In burial 21 were some fragments of buckskin with the hair removed.

¹⁴⁹ Smith, *Archaeology of Lytton, British Columbia*, p. 153.

¹⁵⁰ Smith, *Archaeology of the Thompson River Region*, p. 427.

¹⁵¹ Krieger, *Prehistoric Pit House Village Site*, fig. 5.

¹⁵² Smith, *Archaeology of the Yakima Valley*, p. 96.

¹⁵³ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 72.

¹⁵⁴ Smith, *Archaeology of the Thompson River Region*, p. 427.

¹⁵⁵ Smith, *Archaeology of the Yakima Valley*, p. 90.

¹⁵⁶ Krieger, *Prehistoric Pit House Village Site*, pl. 5.

¹⁵⁷ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 72.

¹⁵⁸ Cline, *Southern Okanagon*, p. 49.

¹⁵⁹ Ray, *Sanpoil and Nespelem*, p. 50.

¹⁶⁰ Smith, *Archaeology of Lytton, British Columbia*, p. 151, fig. 94.

¹⁶¹ Smith, *Archaeology of the Thompson River Region*, p. 426.

¹⁶² Krieger, *Prehistoric Pit House Village Site*, fig. 5.

¹⁶³ Smith, *Archaeology of the Yakima Valley*, figs. 90-92.

¹⁶⁴ Strong, *Archaeology of the Dalles-Deschutes Region*, p. 73.

¹⁶⁵ Spinden, *Nez Percé Indians*, p. 220.

¹⁶⁶ Teit, *Thompson Indians of British Columbia*, p. 222.

Site 48

In burial 2 were two large pieces and several fragments of buffalo hide, including straps $\frac{3}{4}$ inch wide. Several seams are sewed with sinew. Buffalo hair adheres to parts of the hide. This may have been a bag.

In burial 4 were the following:

1. A piece of fringed buckskin without hair, probably a fragment of a bag or shirt.
2. Four fragments of buffalo hide with hair on.
3. A small fragment of heavy hide (elk?) with hair removed, sewed with sinew and having a two-inch fringe on one side, probably a bag.
4. Wrapped around the matted bag enclosing the body of a child was a deer or elk hide with the hair on.

A deer hide with hair on was wrapped around the child's body in burial 5 and sewed in place with sinew.

Site 51

In burial 2 were the following:

1. Deer hide with the hair on wrapped around body.
2. A piece of rawhide with the hair off.
3. A fragment of fringed buckskin with the hair off, probably a shirt or bag.

Kettle Falls Island.

In a disturbed burial was found a small piece of buffalo hide with the hair on.

BASKETRY AND MATTING

Fragments of baskets, bags, and mats were found in burials at sites 7B, 8, 13, 24, 47, 48, and 51. The techniques of coiling, twining, and matting are represented, and there is one example of imbrication on coiling. The materials used appear to be spruce and cedar root, cedar bark, and Indian hemp.

Coiling

No. 2299, site 47, burial 10. Round coiled basket with flat bottom, $3\frac{1}{2}$ inches in diameter and 3 inches high; coiled counterclockwise (viewed from the outside); single rod and welt foundation (fig. 15a); stitches (of cedar or spruce root) $\frac{3}{16}$ inch long and 18 stitches per inch, only a few stitches being split; decorated on outside with series of imbricated designs (fig. 15c) in a darker material, which may be cedar root but is more likely dyed spruce root.¹⁸⁷ This basket was buried with a child and was filled with whole and segmented dentalium beads (fig. 16 f-g).

No. 1795, site 8, burial 3. Small fragment of coiled basketry; splint foundation, the stitches passing under two splints of the coil beneath; apparently split stitch, at least in part, stitches $\frac{3}{8}$ inch long and 12 per inch.

Nos. 2284-2287, site 13, burial 1. Fragments of a large coiled basket, probably round with flat bottom and coiled counterclockwise; splint foundation, stitches passing under one splint of coil beneath (fig. 15b); split stitch throughout; stitches $\frac{3}{8}$ inch long and 10 per inch.

Twining

No. 780, site 24, burial 21. Fragment of open twine basket (fig. 15d); foundation of flat splints (probably cedar bark) $\frac{1}{2}$ inch wide and $\frac{3}{32}$ inch apart; 2 rows of twining per inch.

No. 2209, site 51, burial 2. Fragments of twined bag; on fine, single element foundation, elements $\frac{1}{4}$ inch apart; 7 rows of twining per inch; appears to be made of twisted cedar bark.

¹⁸⁷ Cf. Ray, *Sanpoil and Nespelem*, p. 35.

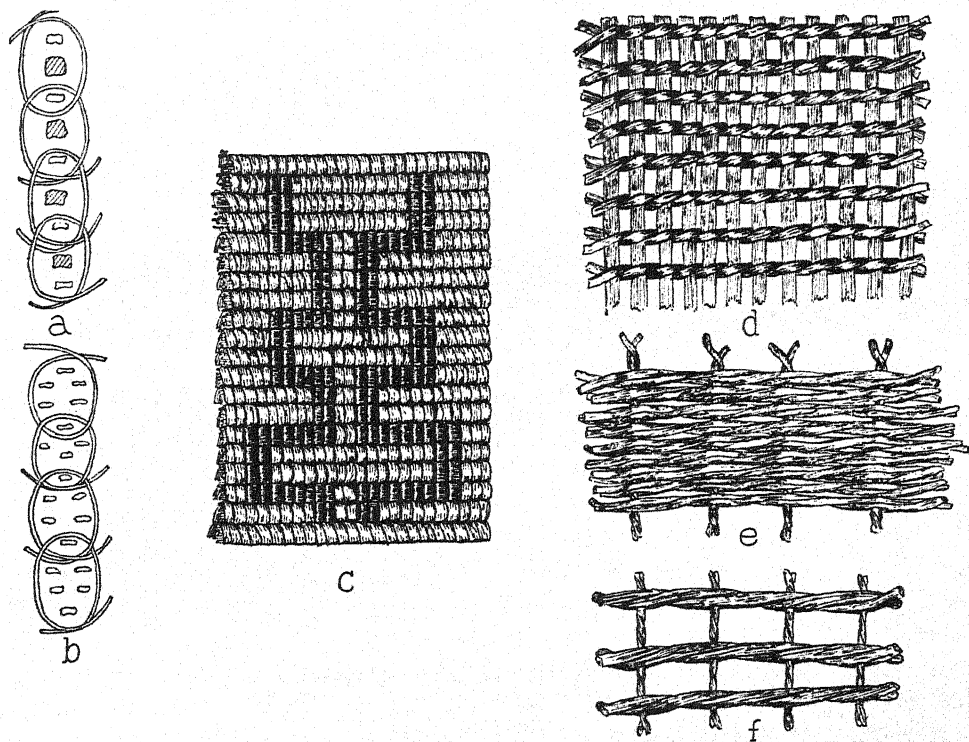


Figure 15. Basketry Techniques

No. 697, site 24, burial 3. Fragment of twined basket or bag; foundation elements almost completely decomposed but appear to be single-ply and are $\frac{1}{2}$ inch apart; 7 rows of twining per inch; twined strands may be cedar bark, although this is uncertain because of the effects of rotting and impregnation by copper salts from copper in the burial.

Matting

No. 2190, site 48, burial 2. Fragment (7 by 10 inches) of bag made in matting technique; 7 twisted (clockwise) fiber foundation elements per inch sewed every $\frac{3}{4}$ inch with two-ply fiber thread twisted clockwise. The fiber appears to be cedar bark. The technique is shown in figure 15e, and a diagram of the stitch in figure 15f. A similar piece of matting, but made of *twisted* rush instead of cedar bark, was found by Smith in a burial near Ellensburg, Washington.¹⁰⁸ He speaks of it as a new type of matting, and states that it has not been found elsewhere in archaeological deposits, and was not made by the Indians of the Thompson River region. Dr. Verne F. Ray was kind enough to examine our specimen and made the following comment:

... this combination is not at all rare in the [upper Columbia] region, although in my opinion it was becoming neglected even before white contact. Eventually the so-called corn husk bag almost entirely displaced it. What surprises me, however, is the probability it is cedar bark, not rush. Even so, the bag is not out of context, for cedar bark was used in the area to a limited degree for such purposes.

No. 2199, site 48, burial 4. Portion of matted bag similar to No. 2190 except that the cedar bark foundation elements are *not twisted*; 6 fiber foundation elements per inch sewed every inch with 2-ply fiber thread twisted clockwise. The small child in this burial was placed inside the bag and the bundle tightly wrapped in a deer or elk hide with the hair still on. Also in the burial were fragments of what appears to be a fringed buckskin shirt, and copper beads and a pendant.

No. 2260, site 7B, burial 7. Fragments of sewn matting; very decomposed, but the material appears to be rush; the nature of the thread cannot be determined.

No. 701, site 24, burial 4. Matted fibers, probably fragment of matting but too decomposed for determination.

No. 734, site 24, burial 12. Small fragments of matted fiber.

No. 2216, site 48, burial 5. Matted fibers suggesting matting.

CORDAGE

Many cords and strings were found in burials, most of them having been used for bead stringing. These are of three types: single stranded buckskin, twisted 2-stranded sinew, and twisted 2-stranded fiber. The twisting is always clockwise. The fibers used are cedar bark and Indian hemp. For distribution and methods used in bead stringing see pages 106-108, table 17, figure 16.

TEXTILES

In burial 12 at site 7B were found some fragments of black, tan, and dark brown textiles and some fine black hair, probably human hair. The burial contained 30 glass trade beads. Since the burial dates from the period of White contact and since no aboriginal textiles like these specimens have been reported from the Plateau, it is probable that they are of White origin. The specimens

¹⁰⁸ *Archaeology of the Yakima Valley*, pp. 85-86, fig. 71.

were submitted to Professor Lila M. O'Neale of the University of California for analysis. Her report on them follows:

1. Black textile of vegetal fibres.
Single-ply yarns both warp and weft wise.
Yarn count: approximately 28 x 28 to the inch.
Weave: plain over-one-under-one.
2. Tan textile of vegetal fibres.
Single-ply yarns both warp and weft wise.
Yarn count: approximately 16 x 16 to the inch.
Weave: a 2 and 1 twill.
3. Dark brown textile (two different fragments of same color).
Single-ply yarns both warp and weft wise of the cloth.
Yarn count: approximately 20 x 20 to the inch.
Weaves: 2 forms of twill: 2 and 1 (as above); and 2 and 2.

The three textile fragments (dark brown, tan, black) are woven of spun vegetal fibres. They appear to be bast fibres similar to flax, hemp, etc. . . .

The black hair is much darker but not perceptibly coarser than that on some of the Peruvian skulls. Your specimen does not seem coarse enough for dog's hair although it is stiffer than the human hair to which I compared it.

ARTICLES OF WOOD

Cedar stake markers over rock slide burials, cedar plank enclosures over pit burials, and charred wood in fire places have already been mentioned. The only other objects of wood came from burials at site 24. In burial 17 was a small pouch containing five small decorated sticks. They are $6\frac{1}{2}$ inches long, $\frac{3}{16}$ inch in diameter, and tapered at the ends. Attached with sinew wrapping to one end of each stick are three feathers which extend to the middle, the tips of the feathers pointing toward the end. They thus have the appearance of miniature arrows. Possibly they had some religious or magical significance. Two toy dug-out boats of wood were found in burial 21, a child burial. One is 4 inches long, $1\frac{1}{4}$ inches wide and $\frac{3}{4}$ inch deep, with both ends pointed and one end perforated, probably for attachment of a cord. Only half the other boat remains. This is $6\frac{1}{2}$ inches long, 2 inches wide and 1 inch deep. The remaining end is pointed and perforated.

POTTERY

No objects of clay were found. A special effort was made not to miss material of this sort because of the fact that the Sanpoil and Nespelem used clay to a limited extent to make rings for the hoop and pole game and for unfired pots.¹⁶⁹ There is a possibility that the Colville also made clay vessels, and a clay sherd is reported to have been found in a plowed field at Inchelium.¹⁷⁰ No evidence of the use of clay was found by us.

¹⁶⁹ Ray, "Pottery on the Middle Columbia."

¹⁷⁰ Ray, *Sanpoil and Nespelem*, p. 40, n. 6.

ARTICLES OF EUROPEAN ORIGIN

Considerable numbers of glass trade beads and tubular copper beads, smaller numbers of other objects of copper, and articles of iron were found at some sites. With one exception, all such articles came from burials. A summary of their distribution is given in table 13, and the distribution is shown in detail in tables 14, 15, and 16.

TABLE 13
DISTRIBUTION OF OBJECTS OF EUROPEAN ORIGIN

Type of Object	SITE										
	2	7A	7B	8	24	29	31	46	47	48	51
Glass beads .....	..	x	x	..	xx	..	..	..	x*	x	x
Tubular copper beads	x	x	..	xx	xx	..	..	..	x	xx	x
Other copper objects	x	x	..	..	xx	x	x	x†	x	x	xx
Objects of iron .....	..	x	..	x	xx	..	..	..	x	..	x

x—present.

xx—present in large quantities.

*—two glass beads in burial 10 only.

†—one copper fragment in burial 2 only.

Articles of Copper

Copper Beads (pls. XIj, XIIId, XIII a-d,f). A total of 1203 tubular copper beads was found. These are made by rolling into cylinders thin sheets of copper which are undoubtedly of European origin. They vary in length from $\frac{3}{8}$ inch to $5\frac{1}{4}$ inches and in diameter from $\frac{1}{8}$ to $\frac{3}{8}$ inch. The beads are strung on buckskin or twisted fiber, often with one or more segments of dentalium between each two copper beads (pls. XIj, XIIId). The methods of stringing are discussed in detail under Techniques of Bead Stringing (pp. 106-108). At site 24 (burial 17) copper beads were strung with small, white glass trade beads, in one case on twisted sinew and in another on twisted fiber. At site 48 (burial 4) were found copper beads strung with large, blue glass trade beads on a single strand of buckskin, with large green glass trade beads on a single strand of buckskin in burial 2, and on twisted fiber in burial 5. Two large cylindrical red glass trade beads were strung with the copper beads from burial 1 at site 51.

The number and distribution of copper beads are shown in table 14. The largest number are from site 24 and site 48.

Copper Pendants (pls. XII b-c,f; XIII e-f,h,m). Twenty-seven copper pendants were found. They consist of sheet copper cut to various shapes, with one or more holes drilled for suspension. Many are roughly triangular, rectangular, or pear-shaped, suggesting shapes characteristic of the shell pendants (pls. XI c-e; XIIa). Four are circular or oval. Two from site 51 are made by removal of the eyelet of a flat copper button and by drilling a hole near one edge (pl. XIIIh).

TABLE 14
DISTRIBUTION OF TUBULAR COPPER BEADS

	Location	Number	Site total
Site 2.....	Burial 12	1	1
Site 7A.....	Burial 4	18	18
Site 8.....	Burial 11	198	198
Site 24.....	Burial 2	24	480
	Burial 4	3	
	Burial 6	2	
	Burial 17	327	
	Burial 21	118	
	Burial 23	6	
Site 47.....	Burial 1	12	12
Site 48.....	Burial 2	270	486
	Burial 4	158	
	Burial 5	58	
Site 51.....	Burial 1	8	58
	Burial 2	50	
TOTAL.....			1253

Copper Bracelets (pl. XIII k-l). Three copper bracelets came from burials at sites 7A, 24, and 47, respectively. These are made by bending rectangular sheets of copper into the form of an open cylinder, the ends being $\frac{1}{2}$ to $1\frac{1}{4}$ inches apart. These strips are $2\frac{1}{4}$ inches by $6\frac{1}{4}$ inches, $1\frac{1}{8}$ inches by 6 inches, and $\frac{7}{8}$ inch by 6 inches respectively, two having rounded ends and one straight ends.

Copper Buttons (pl. XIII g-h). Three flat, plain, circular copper buttons came from burial 1 at site 51. Two of these have been converted to pendants by removal of the eyelet and the drilling of a hole (pl. XIIIh) and for this reason have been listed as pendants in table 15.

Copper Thimble. A copper thimble came from burial 1 at site 51. It is $\frac{3}{4}$ inch high and $\frac{5}{8}$ inch in diameter at the base. The top and sides bear the usual indentations of a thimble. The top has been perforated at the center, possibly for suspension of the thimble as an ornament.

Copper Bells (pl. XIIIi). Three copper bells came from burial 25 at site 24. These have the shape of a flattened sphere $\frac{9}{16}$ inch in diameter and $\frac{3}{8}$ inch deep, with a metal eyelet on the top and two small holes on the bottom. It is

impossible to determine whether the iron clapper within was originally free or attached to the top by a loop, as it is now nearly rusted away.

Knife-like Ornament of Copper (pl. XIIe). A knife-like ornament of copper came from burial 5 at site 48. It is $6\frac{3}{4}$ inch long and 2 inches wide, the blade being 5 inches long and the constricted handle $1\frac{3}{4}$ inches long. One side of the blade is ground to a fairly sharp edge but the other is blunt. There is a hole at the end of the handle and three pairs of holes on the blade. A buckskin thong remains on the upper set of blade holes, indicating that the object was sewn to something. It probably served as an ornament rather than a knife.

TABLE 15
DISTRIBUTION OF COPPER PENDANTS AND OTHER OBJECTS OF COPPER

Type of Object	SITE																			Total
	2	7A	24					29	31	46	47	48		51						
	Burial 10	Burial 3	Burial 4	Burial 11	Burial 13	Burial 21	Burial 23	Burial 25	Burial 4	Pit 4	Surface	Burial 2	Burial 1	Burial 10	Burial 2	Burial 4	Burial 5	Burial 1	Disturbed Burial	
Pendant.....	..	1	1	3	2	3	4	..	1	..	1	..	1	..	2	3	..	7	..	29
Button.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Thimble.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Knife-like ornament.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Bracelet.....	..	..	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3
Bell.....	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	3
Miscellaneous fragments.....	1	..	..	..	1	2	..	..	1	..	1	1	..	1	1	..	1	1	2	11
TOTAL.....	1	1	2	4	2	4	6	3	1	1	1	1	2	1	3	3	1	10	2	49
SITE TOTALS.....	1	3	19					2	1	1	3	7		12						

Glass Trade Beads

Glass trade beads were found in burials at sites 7A, 24, 47, 48, and 51. By far the greatest number came from site 24. The number and distribution are shown in table 16.

Most of these beads are tubular with slightly rounded edges, and are white or blue. This type runs 8 to 9 per inch when strung. These are strung together in solid alternating sections of blue and white. In burial 21 at site 24 the proportion was 2800 white beads to 3350 blue beads. A few green, red, coral, and black beads of about the same size and shape were also found. Blue or green globular beads $\frac{3}{16}$ to $\frac{3}{8}$ inch in diameter were found in small numbers at sites 24, 47, and 48, two of these being the only glass beads from site 47. The two

glass beads from site 51 are red and cylindrical ($\frac{3}{8}$ inch in diameter, $\frac{1}{2}$ inch long). They are strung with dentalium and copper beads.

Many glass beads were noted in association with the disturbed burials on Kettle Falls Island and on the north bank of the Spokane River one-half mile below Detillion bridge, but they were not collected.

Apparently all of the glass beads were strung to be used as necklaces; there is no evidence that they were used for beading skins or cloth. The smaller beads are strung on two-stranded sinew twisted clockwise, and some of the larger beads on fine cord of two-stranded fiber twisted clockwise. A fuller description of bead stringing techniques is given on pages 106-108.

TABLE 16
DISTRIBUTION OF GLASS TRADE BEADS*

	Location	No. of beads	Site total
Site 7A.....	Burial 4	33	33
Site 7B.....	Burial 11	50	80
	Burial 12	30	
Site 24.....	Burial 3	1	8548
	Burial 15	4	
	Burial 17	380	
	Burial 21	6187	
	Burial 23	26	
	Burial 29	1950	
Site 47.....	Burial 10	2	2
Site 48.....	Burial 2	11	263
	Burial 5	202	
	Burial 6	50	
Site 51.....	Burial 1	2	2
TOTAL.....			8928

*NOTE: Large quantities of glass trade beads were noted but not recovered in the back dirt from disturbed graves on Kettle Falls Island and on the north bank of the Spokane River a half mile below Detillion bridge.

Articles of Iron

A total of 12 objects of iron was found at sites 7A, 8, 24, 47, and 51.

Site 7A. In burial 5 were found several irregularly shaped pieces of iron. One of these showed wood impressions at one end, as of a handle, indicating its possible use as a knife.

Site 8. In burial 1 were found two 16-penny iron nails with round cross sections. These are possibly intrusive in the burial. There are modern houses a few hundred yards away and several recent planks on the talus slope nearby. A plank containing nails might have rotted, allowing the nails to drop into the crevices above the burial. In burial 11 was a large object made of sheet iron. It is 31 inches long and bent in the middle to form a "U," although it was probably straight originally. One end is 3 inches wide, and tapers to $\frac{3}{8}$ inch in width 12 inches from the other end, which bifurcates to form a "V." The inside edges of the "V" appear to have been sharpened. No use for this object can be suggested.

Site 24. In burial 2 was an iron object resembling a double-bladed axe. It is $4\frac{1}{2}$ inches long, $3\frac{3}{4}$ inches wide and $\frac{1}{4}$ inch thick. The ends flare like an axe blade and are sharpened. It could have been used as an adze or axe. It would have been hafted like a grooved stone axe.

In burial 21 was a sword blade $19\frac{3}{4}$ inches long, $1\frac{3}{8}$ inches wide at the base, and tapering gradually to the point. It is straight, unlike a cavalry sword. From the same burial came a wedge-shaped piece of iron $6\frac{1}{4}$ inches long, $1\frac{1}{2}$ inches wide, $\frac{1}{4}$ inch thick, sharpened at one end. It could have been used as a wedge or adze. Also in this burial was a pistol barrel or segment of a rifle barrel $10\frac{3}{4}$ inches long, $1\frac{1}{4}$ inches in diameter at the breech and tapering to 1 inch at the muzzle. It is hexagonal in cross section. Since the breech is solid, it must have been a muzzle loader.

In trench 4 at a depth of 8 inches were 8 large square iron nails.

In burial 22 was a piece of iron $2\frac{3}{4}$ inches long and 1 inch wide. Fragments of wood adhere to both sides at one end, suggesting the possibility that the object is a fragment of a hafted knife.

Site 47. In burial 1 was a knife made by inserting an iron blade into the split edge of a deer rib (p. 80; pl. IXg).

Site 51. In burial 1 were two single-bladed iron axes $6\frac{1}{2}$ inches long, $3\frac{1}{2}$ inches wide at the blade edge, with a $1\frac{3}{4}$ -inch hole for hafting (pl. XIIIIn).

TECHNIQUES OF BEAD STRINGING

Several methods of stringing shell, copper, and glass beads were used in our region. These are described in the following classification. Their distribution is shown in table 17.

Type 1a. The smaller glass trade beads are strung on a cord of two-stranded sinew twisted clockwise.

Type 1b. In a few cases the larger glass trade beads are strung on a very fine cord of two-stranded fiber (cedar bark or Indian hemp) twisted clockwise. This cord is too thick for the smaller beads.

Type 2. Necklaces of copper and dentalium beads or copper alone strung on a single strand of buckskin.

Type 3. Tubular copper beads and small segments of dentalia strung on two strands of buckskin (fig. 16a). The strands are not twisted in the section holding the copper beads but are twisted tightly clockwise in the section holding the dentalium beads to accommodate their smaller diameter.

Type 4a. Long ("whole") segments of dentalia strung double on two strands of buckskin, one strand crossing over to the opposite side through a hole in the other strand at the end of each pair of dentalium segments (fig. 16b).

Type 4b. Tubular copper beads in pairs and dentalium segments singly on two strands of buckskin. At the end of the pair of copper beads the two strands pass together through the same dentalium segment (fig. 16c).

Type 4c. Dentalium segments strung in pairs on two-stranded sinew twisted clockwise (fig. 16d). The effect is the same as in 4a, but the cords are knotted at each end of the pair of beads instead of one strand being passed through a hole in the other.

Type 5a. Dentalium and copper beads, dentalium beads alone, or copper beads alone, strung on two-stranded bark fiber (cedar bark or Indian hemp) twisted clockwise (fig. 16e).

Type 5b. Dentalium and copper or dentalium alone strung on three or more, often four, very fine cords of two-stranded fiber twisted clockwise, the beads being arranged singly as in 5a.

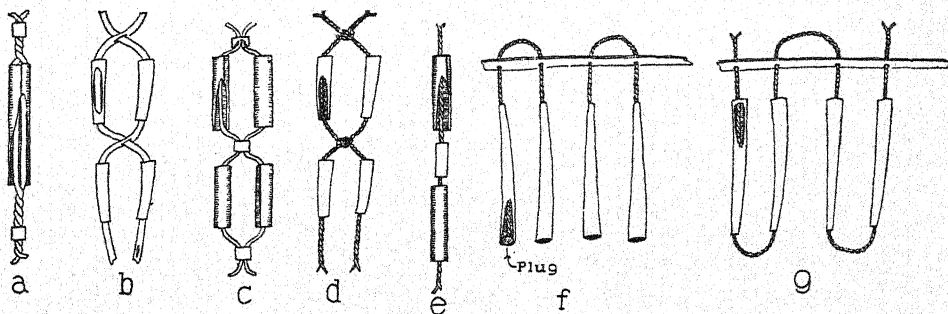


Figure 16. Techniques of Bead Stringing

Type 6a. Dentalium fringes for shirts or dresses are made by fastening whole dentalium shells to a narrow strip of deer skin. The shells are suspended with the smaller end up by means of a two-stranded sinew cord twisted clockwise. The shells are hung in pairs, the cord running from the lower end of the first up through the leather strip and returning to the lower end of the second. The shells are prevented from slipping down the cord by plugs of gum or resin at their lower or large ends (fig. 16f).

Type 6b. Similar to 6a but the shells are suspended, small end down, by means of a continuous two-stranded cord twisted clockwise connecting the shells in pairs (fig. 16g).

Shell disc beads, bone tubular beads, olivella beads, and perforated elk teeth were found unstrung with no evidence to show how they had been strung or suspended.

TABLE 17
DISTRIBUTION OF TECHNIQUES OF BEAD STRINGING

	Location	TYPE											
		1a	1b	2	3	4a	4b	4c	5a	5b	6a	6b	
Site 7A.....	Burial 3	x	..	..	..	..	..	..	..	..	..	..
	Burial 4	x	x	x	..	..	x	..	x	..	..	..
Site 8.....	Burial 11	..	..	..	..	..	..	..	x	..	..	..
Site 11.....	Trench 5	..	..	..	..	x	..	..	..	..	..	..
Site 24.....	Burial 2	..	..	..	..	..	..	..	x	..	..	..
	Burial 6	..	..	..	..	..	..	..	x	..	..	..
	Burial 17	x	x	x	..	..	..	..	x	..	..	..
	Burial 21	x	x	..	x	..	..	..	x	..	..	..
	Burial 29	x	..	..	x	..	..	..	..	..	..	..
	Trench 2	..	..	..	..	..	..	..	x	..	..	..
Site 47.....	Burial 1	..	..	..	..	..	..	..	x	..	..	..
	Burial 10	..	..	..	..	..	..	..	x	..	x	x	
Site 48.....	Burial 2	..	..	x	..	..	..	x	x	x	..	..
	Burial 4	..	..	x	x	..	..	x	x	x	..	..
	Burial 5	x	x	x	x	..	..	..	x	..	..	..
	Burial 6	x	x	..	..	..	x	..	..	..	..	..
Site 51.....	Burial 1	x	..	..	x	..	..	..	x	x	..	..
	Burial 2	..	..	x	..	..	..	..	..	x	..	..
Kettle Falls Island, disturbed burial....		..	..	x	..	..	..	..	x	..	..	..

PETROGRAPHS

Both pictographs and petroglyphs were found in our region. The former are pictures drawn with red pigment (turgite or hematite), while the latter are engravings made by pecking or abrasion.

PICTOGRAPHS

Site 4. In this small rock shelter at the mouth of the Sanpoil (cf. p. 14) are two pictographs drawn with red pigment. Both are very faded and were not photographed successfully. One is an anthropomorphic figure, the other an arc with rays similar to ones found in the Dalles-Deschutes region.¹ There are traces of other pictographs here but they are too faint to be made out.

Site 30. In this rock shelter near Whitestone Bluff on the south bank of the Columbia (cf. p. 27) are two pictographs in red pigment. One is a human figure on horseback, the horse being 7 inches from head to tail. The second consists of the tail, hind quarters, and hump of a bison. The head and forelegs have faded out. The animal is about 5 inches high. Fifty yards southwest of this shelter is another overhanging rock with traces of badly weathered red pictographs. The only distinguishable figures are a vertical bar 1 inch wide and 8 inches long, and a horizontal comb-like design 8 inches long, a type also found in the Dalles-Deschutes region.²

Site 35. Badly faded red pictographs were observed on vertical rock faces on the southwest side of Kettle Falls Island. The following figures were recognized: two parallel arcs resembling a double rainbow; an inverted arc with rays; groups of three and four vertical parallel bars; a human hand (solid, not in outline).

PETROGLYPHS

At site 36 below Kettle Falls bridge (cf. p. 28) on the quartzite outcropping which slopes down to the river are numerous petroglyphs, all of which are above normal high water. The outstanding of these are shown in plate XXII. In addition to the types shown, there are numerous circles and dots.

¹ Strong, *Archaeology of the Dalles-Deschutes Region*, fig. 21a.

² *Ibid.*, fig. 21d.

CONCLUSIONS

Three major types of archaeological evidence were found by our Survey in the upper Columbia region, namely, habitation sites, shell heaps, and cemeteries. A few pictographs and petroglyphs were found but these throw little light on the rest of our material. Habitation sites include temporary camp sites and permanent village sites. The shallow shell heaps contained little or no evidence of human occupation, and we believe they were the result of sporadic use of river clams for food during times of famine. Burials were of two types, rock slide burials and sand or gravel pit burials. The evidence is that both types were used in prehistoric as well as in historic times, and probably by the same cultural groups; they were apparently alternative forms of burial.

Large numbers of artifacts of stone, bone, and shell were found in habitation sites and to an even greater extent in burials. Practically confined to burials were the carefully worked celts and mauls, stone pipes, shell ornaments, and the more elaborate implements and ornaments of bone. Stone projectile points, pestles and hammerstones, and quartzite scrapers were distributed widely on the surface, as well as in habitation sites and graves. Articles of European origin (glass beads, copper beads, and other ornaments and objects of iron) were found at about a third of our numbered sites (table 13), and with two exceptions all of these were associated with burials.

No potsherds or other evidence of the use of clay were found. We failed to discover any evidence bearing on pit houses or other house structures. A few well made stone hearths were found at permanent village locations (sites 11, 24, 31, and 45). More numerous were areas of burned stones which we believe to be remains of earth ovens.

SUMMARY OF MATERIAL CULTURE

Save with respect to the question of house types, we have abundant archaeological evidence concerning the nature of material culture on the upper Columbia during late prehistoric and early historic times. A brief summary will be given here of the most important aspects of that culture. No significant cultural differences were noted for our region, either horizontally or vertically. It is necessary to conclude that there was relative cultural homogeneity, at least in the field of material culture, on the upper Columbia in prehistoric and early historic times, and except for the appearance of increasing numbers of objects of European origin in later horizons, and possibly some late increase in Plains influence, we are unable to distinguish any significant cultural changes through time. In this connection it is unfortunate that we lack evidence on house types. This conclusion accords well with the ethnological picture for this region.¹ In early historic times the upper Columbia appears to have been geographically intermediate in the Plateau with respect to converging influences from the Plains and Coast, and Ray

¹ Ray, *Cultural Relations in the Plateau*.

is of the opinion that "The Southern Okanogan, Colville, Sanpoil, Lower Spokane and Columbia may with reasonable safety be viewed as most representative of older levels and fundamental aspects of Plateau culture."² Our archaeological evidence tends to confirm this view.

Although few fish bones were found in refuse heaps, probably because they are so perishable, the presence of many bone points presumably used on fish spears and of antler harpoon points would indicate that salmon and other fish were an important source of food in prehistoric times. The stone sinkers are another bit of evidence bearing on the importance of fish. Judging by the numerous animal bones in the refuse heaps, particularly split long bones of deer and elk, the meat of animals was also an important part of the diet. Very few seeds were found in refuse heaps, the only edible ones being pine nuts, wild cherry, and chokecherry. The antler digging stick handles and tips and other probable digging implements of bone are evidence of the importance of root digging.

If beads of shell, copper, and glass are excluded, chipped stone artifacts are most numerous. In this class quartzite scrapers are the most numerous, followed by chipped stone points, 66 per cent of which are non-stemmed. Also found in considerable numbers are drills, gravers, end scrapers, side scrapers, flake knives, and rough core scrapers. The next most numerous class is that of bone and horn objects. Bone and horn are used for arrow and spear points, harpoon points, harpoon collars, knife handles, awls, needles, bodkins, digging stick handles and digging implements, flakers, wedges, fleshers or scrapers, whistles, a spoon, comb and ring, and other ornaments. Elk teeth are used for necklaces and beaver teeth for dice. In addition to the large number of dentalium, olivella, and disc shell beads, there are pendants of abalone and river clam, and a few shell rings. In numbers, ground stone is not an important class in our region. In this class the ground and polished celts and mauls are outstanding; pestles and hammerstones are less carefully made. Tubular pipes of talc schist are well made but not numerous. A few girdled sinkers, slate needles, mortars, whetstones, arrowshaft smoothers, and ornaments complete the class. Articles of wood are few, no doubt because of their perishability. Hide fragments in burials indicate there was considerable use of deer and elk hides, and some use of buffalo hide, for robes, bags, and possibly for shirts. Occasionally bodies were wrapped in deer hide. Coiled baskets (one example of imbrication), and twined and matted bags were made. A matted bag of cedar bark is of interest. Cordage is of cedar bark or Indian hemp, and is used for sewing mats and for stringing beads. Finally, iron tools and ornaments of copper and glass are numerous at certain sites, serving to place these sites within the period of White contact.

AFFILIATIONS WITH SURROUNDING REGIONS

In general, the archaeological culture of the upper Columbia affiliates most closely with the Fraser and Thompson river regions. The resemblance extends not only to types of artifacts but also to materials used and specific forms. Thus, in the two areas bone implements are more numerous and varied than in

² *Ibid.*, p. 149.

other parts of the Plateau for which there are archaeological data. Furthermore, many of the bone implements are very similar in form; for example, the very similar harpoon points from the upper Columbia and Lytton, which have not been reported from other regions. The strikingly similar celt forms and tubular pipe forms in these two areas are further examples. Only in these two areas are found large numbers of our special class of quartzite scrapers; at least they have not been reported elsewhere. Further evidence of similarity was cited in the comparative sections following the description of each class of artifact. It is unfortunate that it is not possible to compare the house types in our region with those of the Fraser and Thompson river regions in prehistoric times. Also, there are insufficient data from the northern region to compare chipped point forms and form frequencies with those of our region. We have pointed out the differences in point forms between our area and the Dalles-Deschutes region. A further contrast with the lower Columbia is the absence in our region of the elaborate bone and stone carving reported for Wahluke,³ the Yakima Valley,⁴ and the Dalles-Deschutes region.⁵ The circle and dot design so characteristic in the decoration of bone and of beaver tooth dice on the upper Columbia and in the Fraser drainage is found sporadically at Wahluke,⁶ even less frequently in the Yakima Valley,⁷ and not at all in the Dalles-Deschutes region.

This northward affiliation of the archaeological culture on the upper Columbia is not in complete agreement with the ethnological picture. On the basis of comparative studies Ray has concluded that the Thompson, Lilloet, Shuswap, and Okanagon fall into one sub-area of culture, while the groups to the south of the international line fall into another. He finds that this division "is encountered more consistently in aspects of religious culture than in other branches, but is unmistakably present in social and material fields as well." He concludes that "Neither the northern nor the southern area may be said to be the more typical of the Plateau. The two present distinctive variations upon certain fundamental Plateau themes."⁸

Religious and social differences between the two areas would not be reflected in the archaeological evidence we have been able to recover; the recent differences in material culture referred to by Ray are not so striking as those in the field of non-material culture. Furthermore, we have no archaeological evidence from our area as to the house types and canoe forms, for which there was contrast between the two regions in historic times. We cannot say, therefore, that these particular contrasts did not exist in prehistoric times also. But for that part of the prehistoric material culture which we know, the similarities between the upper Columbia and the area to the north are striking.

As has been pointed out above, we have no evidence of any significant cultural change on the upper Columbia in early historic times, and the archaeological

³ Krieger, *Prehistoric Pit House Village Site*, pl. 6.

⁴ Smith, *Archaeology of the Yakima Valley*, figs. 105, 116, 121, 123, 127, 128.

⁵ Strong, *Archaeology of the Dalles-Deschutes Region*, pls. 9, 11c, 12 e-i.

⁶ Krieger, *Prehistoric Pit House Village Site*, pl. 6.

⁷ Smith, *Archaeology of the Yakima Valley*, fig. 104.

⁸ *Cultural Relations in the Plateau*, pp. 147-148.

picture fits the ethnological picture well. It seems reasonable to propose, therefore, that the lack of agreement between archaeological and ethnological evidence with regard to upper Columbia-Fraser drainage resemblances is due to recent changes in the northern region. It is known that the Thompson were strongly influenced by the Coast.⁹ Furthermore, we have already cited some evidence of recent changes among the Thompson, namely, the shift from pit and rock slide burials to wooden boxes or cremation, and the shift from tubular to elbow pipes. It must be admitted, however, that the latter change occurred on the upper Columbia also, no doubt as a result of Plains influence.

With the exception of the two catlinite pipes, one of Plains type, and fragments of buffalo hide, we found no archaeological evidence on the upper Columbia of influence from or contact with the Plains. Yet our sites date largely from the period of intensive Plains influence; the oldest horizons in some of our sites (e.g., site 11) very probably date from before the arrival of the horse. In this respect the archaeological evidence further confirms Ray's conclusion that on the upper Columbia is found Plateau culture least altered by influences from Plains and Coast.

DATING OF SITES

No precise dating of our sites is possible. However, we are able to divide them into sites dating from before and after the period of first White contact on the basis of presence or absence of objects of European origin. According to this criterion, only sites 2, 7A, 7B, 8, 24, 29, 31, 46, 47, 48, and 51 date from the period of White contact. Of these, sites 8, 24, 29, 48, and 51 contain very large quantities of European trade objects (table 13) and are presumably latest. From other indications we believe that sites 8, 48, and 51 are very late, some of the burials there probably being more recent than 1850. The oldest sites, judging by the depth of their undisturbed deposits, are 11, 24, 31, and 45, although some of the other sites may be as old. Site 11 shows traces of human occupation from the surface to a depth of 90 inches, with no trace of White contact. It was probably abandoned, therefore, before 1800, and the lowest levels must have been occupied a very long time before that. At site 24 there are White-contact burials intrusive into the midden, but the undisturbed portions of the lower half of the midden contained no objects of European origin and date from considerably before 1800.

Good stratigraphic situations were found in these deep sites (11, 24, 31, and 45); in sites 11 and 31 there were distinct occupation layers separated by sterile sand, but no significant typological differences could be noted from bottom to top of these deposits.

POPULATION DENSITY AND INTENSITY OF CULTURE

In considering the number and nature of the sites worked by us, and the cultural material recovered from them, two things stand out: first, the very sparse population which must have existed in the region, and second, the simple culture

⁹ *Ibid.*, p. 147.

represented. In fourteen months of field work, covering both banks of the Columbia for a distance of roughly 150 miles, as well as the lower reaches of the Spokane and Kettle rivers, only thirty-five definite sites were located. A number of these were not habitation sites, and only a few of them were large villages occupied for long periods of time. It is interesting to compare our area with the Dalles-Deschutes region in this respect. Strong and his associates in a period of three and a half months, on both banks of the Columbia, in a distance of fifteen miles located twenty-two sites, and recovered 305 chipped points. They do not report the number of other classes of implements recovered. In a period four times as long and in an area ten times as large we found only thirty-five sites and recovered 284 chipped points. The difference is the more striking when it is realized that for a good part of our period in the field we had ten to twelve men engaged in digging. Strong's force was much smaller than this. If allowance is made for the possibility that chipped points are proportionately more abundant in the Dalles-Deschutes region, the discrepancy between results in the two areas is still striking. The only possible conclusion to be drawn from these facts is that the upper Columbia had a considerably sparser population in prehistoric times than did the Dalles-Deschutes region. Ethnological data seem to bear out the low population density along the upper Columbia.¹⁰ With regard to the intensity of culture, reference has already been made to the absence along the upper Columbia of elaborate carving in bone and stone, which was presumably lacking in wood also. Decoration consisted largely of simple incised lines and circles or dots. The general impression gained from our material is of a relatively simple culture.

THE PROBLEM OF HOUSE TYPES ON THE UPPER COLUMBIA

In our opinion, one of the important archaeological problems needing solution in the Columbia Basin is that of the types and changes of house structures in the area in prehistoric times. This problem is especially important because of the evidence of a shift from pit houses to surface mat lodges in early historic times.¹¹ Yet we are unable to offer any data bearing on this problem. Although there is abundant ethnological evidence¹² of the use of pit houses on the upper Columbia, persistent efforts throughout our region have failed to produce any archaeological evidence of pit houses. We are at a loss to explain this failure. Prehistoric pit houses have been reported from Lytton,¹³ the Thompson River region,¹⁴ Wahu-luke,¹⁵ the Yakima Valley,¹⁶ the Dalles-Deschutes region,¹⁷ and along the Snake in the vicinity of Lewiston,¹⁸ but there are excavation data only for the Dalles-Deschutes region. At Miller's Island and Wakemap Mound, Strong¹⁹ and his

¹⁰ Kroeber, *Cultural and Natural Areas in Native America*, table 7, p. 138 (based on Mooney's figures).

¹¹ Strong, *Archaeology of the Dalles-Deschutes Region*, pp. 38-40.

¹² Summarized by Ray, *Cultural Relations in the Plateau*, pp. 132-140.

¹³ Smith, *Archaeology of Lytton, British Columbia*, p. 140.

¹⁴ Smith, *Archaeology of the Thompson River Region*, p. 414.

¹⁵ Krieger, *Prehistoric Pit House Village Site*, p. 6.

¹⁶ Smith, *Archaeology of the Yakima Valley*, pp. 51-55.

¹⁷ Strong, *Archaeology of the Dalles-Deschutes Region*, pp. 29-38.

¹⁸ Spinden, *Nez Percé Indians*, p. 197.

¹⁹ Strong, *Archaeology of the Dalles-Deschutes Region*, pp. 29-38.

associates trenched but did not completely excavate five house pits. So far as we are aware, these are the only excavations of house pits that have been made anywhere in the Plateau. Since we lack any archaeological evidence bearing on pit houses on the upper Columbia, we shall not discuss the evidence from the Dalles-Deschutes region. We should like to urge the importance of careful excavation of house pits in various parts of the Plateau. Our own repeated failures in investigating apparent house pits on the upper Columbia have perhaps given us a rueful skepticism regarding surface indications of pit houses.

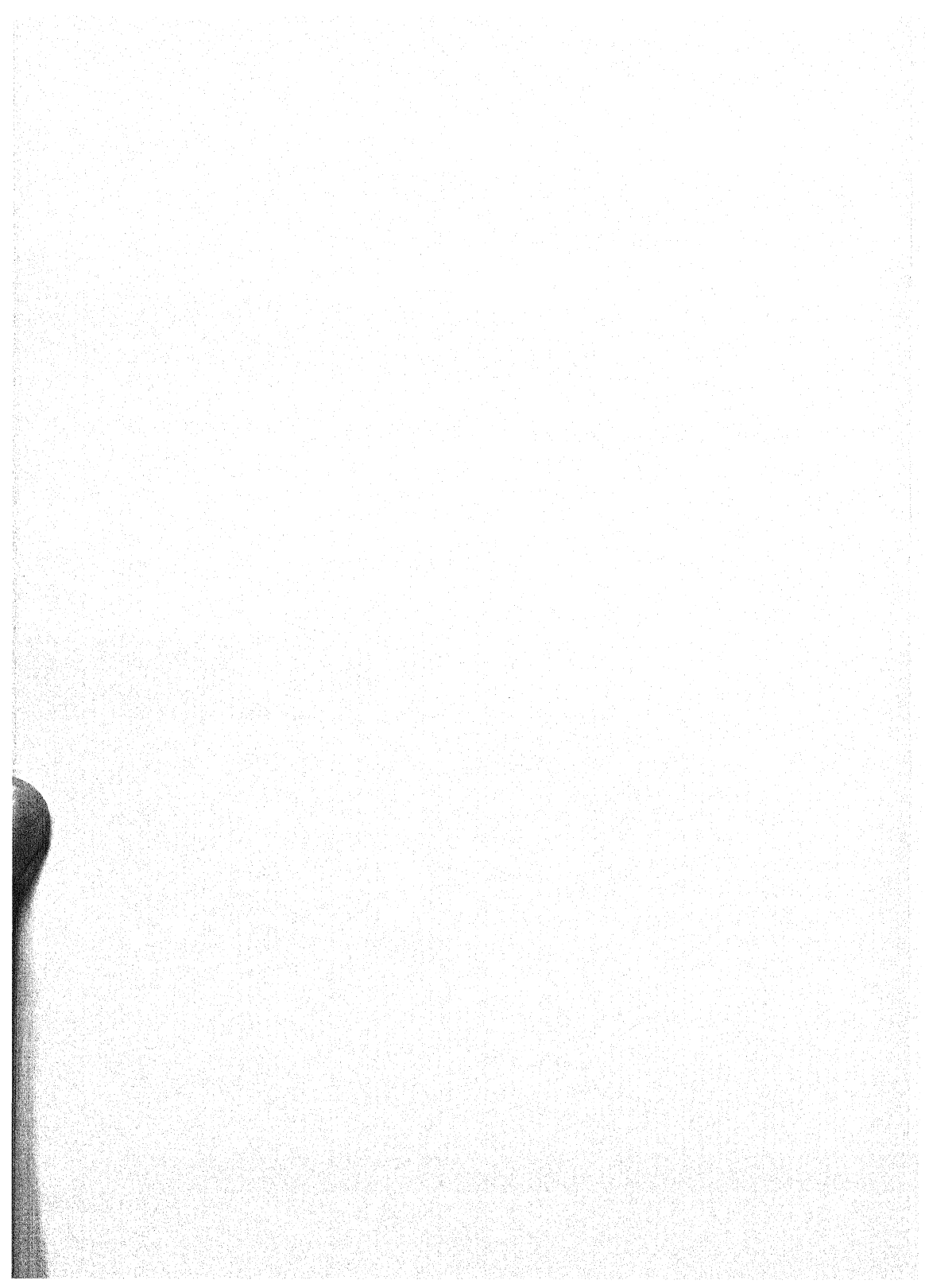
INDIAN TRADE

We have been able to adduce from our material considerable evidence of extensive Indian trade in the Plateau. This evidence consists of the non-local provenience of materials and styles of artifacts recovered along the upper Columbia.

A number of stone materials appear to have come from outside our region. The anthophyllite and nephrite used for celts are not known to occur naturally on the upper Columbia. There are deposits of nephrite along the Fraser River, and this is likely to have been the source of our nephrite. This possibility is strengthened by the close similarity of celt forms in the two regions. The only deposit of anthophyllite that we know of is on the Skagit River in northwestern Washington, and this place is suggested as the source of our anthophyllite. Some of the obsidian used for our points is of a banded type characteristic of southeastern Oregon, and probably came from that region. Our one piece of turquoise probably came from Nevada. Two catlinite pipes, one tubular and the other of Plains elbow type, indicate trade or contact with the Plains. We have referred to the fact that the Southern Okanagon secured catlinite from the Plains by way of the Shuswap, and it is possible that our catlinite followed the same route.

The most extensive Indian trade was in marine shells, namely, dentalium, olivella, rock scallop, and abalone. These shells probably reached the upper Columbia either from the Fraser River or up the Columbia. We have indicated the possibility that at least a part of the dentalium shells in the upper Columbia region came from the Fraser River rather than up the Columbia. It is likely that abalone shells were secured by the southern route.

Our whale bone club is further evidence of trade. This is carved in Northwest Coast style, and probably reached our region via the Fraser.



APPENDIXES

APPENDIX A. *VERTICAL DISTRIBUTION OF CULTURAL MATERIAL*

Only at sites 11, 24, 31, and 45 were there occupational deposits of sufficient depth and extent to yield significant data on the vertical distribution of cultural materials. The vertical distribution of chipped stone artifacts is shown in table 18, and that of other artifacts in table 19. These do not include the contents of burials. In connection with the distribution of artifacts it is important to consider the other contents of the middens. The contents of the middens by levels are shown in tables 20, 21, 22, and 23.

It will be noted that the greatest concentration of chipped stone artifacts is from depths of 24 to 47 inches. For other types of artifacts the greatest concentration is at 12 to 23 inches. It should be remembered, however, that the majority of implements of bone, horn, ground stone, and shell came from burials and are not listed in table 19. The deepest artifacts found were a quartzite scraper at a depth of 84 inches and an antler knife handle at 90 inches, both at site 11. The greatest concentration of midden debris is found at 24-35 inches at site 11 (with secondary concentrations at 36-47 inches and 60-71 inches), at 12-23 inches at site 24 (a shallow site), at 36-47 inches at site 31, and at 60-70 inches at site 45. Allowing for the perishability of fish bones, it is somewhat surprising that so few were found, but we do not feel that our data are sufficient to conclude that fish played a less important part in the diet in prehistoric than in historic times. No fish bones were found at sites 31 and 45.

TABLE 18 DISTRIBUTION BY DEPTH OF CHIPPED STONE ARTIFACTS AT SITES 11, 24, 31, AND 45

Level	Site	NAa	NAb ₁	NAb ₂	NBa	NBb ₁	NBb ₂	NBc	NC	SAa	SAb	SBa	SBb	SCa ₁	SCa ₂	SCb ₁	SCb ₂	SCb ₃	Drills	Gravers	End scrapers	Side scrapers	Flake knives	Unclassifiable retouched flakes	Total
0"-11"	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	4	
	24	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	3	2	3	7	19
	31	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	6	10	
	45	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	
	Total	1	1	..	..	..	..	1	..	1	..	1	..	..	..	..	1	..	..	3	5	2	3	16	35
12"-23"	11	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	1	11	16
	24	..	1	2	..	..	..	..	..	..	..	1	..	..	..	..	1	..	3	2	..	..	2	6	18
	31	..	..	..	..	1	..	1	..	..	1	..	..	1	1	..	..	..	..	2	1	4	1	4	17
	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	1	2	1	1	..	1	..	..	1	1	..	1	1	..	2	..	3	4	2	5	4	21	51
24"-35"	11	..	..	..	..	..	..	1	..	1	..	..	1	..	..	2	3	..	1	2	8	5	3	18	45
	24	2	..	..	1	..	..	1	..	1	..	1	1	..	..	1	1	..	..	3	..	..	3	..	15
	31	..	3	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	..	2	6	18
	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	3
	Total	2	3	..	3	..	..	2	..	2	..	1	2	..	..	3	5	..	2	9	8	6	9	24	81
36"-47"	11	..	4	..	..	..	..	3	..	..	..	..	..	2	1	1	1	..	1	2	2	5	3	23	47
	24	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3
	31	..	3	..	3	..	..	..	..	..	..	2	1	..	1	..	6	1	..	1	5	5	..	3	31
	45	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
	Total	..	7	1	3	..	..	3	..	1	..	2	1	..	3	1	7	1	1	3	8	10	3	26	81
48"-59"	11	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	4	6
	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	4	
	45	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	1	3	7	
	Total	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	1	..	..	..	..	2	2	9	17
60"-71"	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..	4
	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	45	..	3	..	1	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	8	
	Total	..	3	..	1	..	..	2	..	..	..	1	..	..	..	2	..	..	..	..	..	3	..	12	
72"-83"	45	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	
GRAND TOTAL	.....	3	17	3	8	1	..	10	..	4	1	5	4	2	4	5	18	1	6	19	23	25	24	97	280

TABLE 20
CONTENTS BY LEVELS OF MIDDEN AT SITE 11

Level	Trench	Fish vertebrae	Mussel shells	Fresh water snail shell	Bird bones	Bison bones and teeth	Dog skull	Deer antler	Deer bones and teeth	Elk bones and teeth	Quartzite fragments	Chalcedony flakes	Basalt fragments	Opal fragments	Argillite fragments	Jasper fragments	Obsidian fragments	Slate fragments	Red ochre fragments	Birch bark	Charcoal fragments	Wood fragments	Pine cones and seeds	Hackberry pits	Wild cherry pits	Total
0"-11"	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
	2	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	4
	3	..	5	..	..	..	..	..	..	..	..	45	..	..	..	..	..	..	..	..	..	..	..	..	..	50
	4	..	..	..	..	..	..	..	..	1	40	..	2	..	..	..	..	..	..	..	..	..	..	..	..	43
	5	..	3	..	..	..	..	2	..	..	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
	Total	..	8	..	..	..	..	..	2	..	1	108	..	2	..	..	..	..	..	..	..	..	..	..	..	121
12"-23"	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
	2	..	..	..	..	..	..	..	..	..	..	25	..	..	..	..	..	..	..	..	..	..	..	..	..	25
	3	..	5	..	..	..	..	..	9	..	1	140	..	..	..	..	1	..	..	..	..	..	..	..	..	156
	4	..	5	..	2	..	..	6	..	..	34	..	2	..	..	..	..	..	..	..	..	2	..	..	..	51
	5	..	13	..	1	..	..	4	..	..	24	2	..	..	..	..	..	..	..	..	..	..	..	..	..	44
	Total	..	23	..	3	..	..	19	..	1	223	2	2	..	..	..	1	..	..	..	..	..	2	..	..	276
24"-35"	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
	2	1	..	..	..	..	..	13	4	..	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
	3	..	1	..	1	..	..	29	20	..	1190	..	5	..	..	7	..	..	..	..	3	1	..	6	..	1263
	4	..	..	..	2	..	..	2	2	2	278	..	..	..	..	..	..	..	..	..	1	..	..	..	..	287
	5	..	..	..	..	..	..	9	6	..	38	10	..	..	..	2	..	..	..	..	..	..	..	..	..	65
	Total	1	1	..	3	..	..	53	32	2	1534	10	5	..	..	9	..	..	..	..	4	1	..	6	..	1661
36"-47"	1	..	..	..	..	..	2	61	35	..	60	..	..	..	..	..	..	..	..	..	..	..	..	..	..	158
	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	..	10
	3	..	1	..	4	..	..	22	4	..	320	50	..	..	5	..	..	..	..	..	..	..	..	..	..	406
	4	..	..	..	..	..	..	3	1	..	96	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100
	5	..	..	..	..	..	..	..	3	..	51	..	..	..	..	..	..	..	..	3	..	..	..	..	..	57
	Total	..	1	..	4	..	2	86	43	..	527	50	..	..	5	..	..	..	..	3	..	..	..	10	..	731

TABLE 21
CONTENTS BY LEVELS OF MIDDEN AT SITE 24

Level	Trench	Mussel shells	Fish bones	Bird bones	Deer bones and teeth	Deer antler	Elk bones and teeth	Badger skeleton	Small mammal bones	Mountain sheep horn fragment	Quartzite fragments	Chalcedony flakes	Basalt fragments	Opal fragments	Abraded river cobble	Red ochre fragments	Charcoal fragments	Peach stones	China doll fragment	Square iron nails	Turtle shell fragments	Total
0"-11".....	1	3	2	..	5	..	..	..	..	..	1	100	..	..	..	..	..	..	..	..	..	111
	2	2	..	..	1	..	..	..	..	..	..	25	..	..	..	..	..	..	..	..	..	28
	3	..	..	..	1	..	..	..	..	..	1	24	..	..	..	..	..	..	..	..	..	26
	4	..	..	..	51	..	..	..	..	..	10	39	2	..	..	..	..	..	1	8	..	111
	5	4	..	..	80	..	..	..	..	..	2	9	..	..	..	..	..	..	..	..	1	96
	Total	9	2	..	138	..	..	..	..	..	14	197	2	..	..	..	..	..	1	8	1	372
12"-23".....	1	..	8	1	33	..	..	..	..	..	8	115	..	..	..	1	..	..	..	..	1	167
	2	..	..	..	4	..	..	..	..	..	2	5	..	..	..	..	..	..	..	..	..	11
	3	..	..	..	5	..	..	..	..	..	9	25	..	..	1	..	..	2	..	..	..	42
	4	..	..	..	85	..	..	..	5	..	..	23	..	..	..	..	..	..	..	..	..	113
	5	16	5	..	120	..	..	..	..	8	10	17	..	..	..	..	..	..	..	..	2	178
	Total	16	13	1	247	..	..	..	5	8	29	185	..	..	1	1	..	2	..	..	3	511
24"-35".....	1	..	13	..	47	..	5	..	..	..	10	37	..	..	..	..	..	..	..	..	1	113
	2	..	..	..	8	4	..	..	..	..	1	11	..	..	..	..	..	..	..	..	..	24
	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	4	..	..	..	15	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	17
	5	9	3	..	50	..	..	..	..	..	3	3	..	..	..	..	10	..	..	..	..	78
	Total	9	16	..	120	4	5	..	..	..	14	53	..	..	..	..	10	..	..	..	1	232
36"-47".....	1	..	7	..	4	..	..	..	..	..	3	7	..	..	..	..	..	..	..	..	1	22
	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	3	..	..	..	2	..	3	..	..	..	1	7	..	..	..	..	..	..	..	..	..	13
	4	5	..	10	27	..	..	1	..	..	3	11	..	10	..	..	..	..	..	..	..	67
	5	..	..	..	18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
	Total	5	7	10	51	..	3	1	..	..	7	25	..	10	..	..	..	..	..	..	1	120

TABLE 22

CONTENTS BY LEVELS OF MIDDEN AT SITE 31

Level	Trench	Deer antler	Deer bones and teeth	Elk bones and teeth	Cow's rib	Mussel shells	Argillite fragments	Basalt fragments	Chalcedony flakes	Hematite-chalcedony mixture	Quartzite fragments	Slate fragments	Charcoal fragments	Cat's tooth seeds	Pine seeds	Total
0"-11"	1	..	5	..	..	6	1	..	8	..	13	1	..	..	..	34
	1-S	..	10	..	1	..	..	..	..	..	..	..	..	*	..	11
	2	1	3	..	..	4	..	..	19	..	8	..	..	..	..	35
	3	..	3	..	..	6	..	..	..	..	..	..	..	..	..	9
	Pit B	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	Total	1	21	..	1	16	1	..	27	..	21	1	..	*	..	89
12"-23"	1	..	1	..	..	7	1	..	7	2	2	..	15	..	..	35
	1-S	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	2	..	..	..	..	46	18	..	42	..	4	..	14	..	..	124
	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	Pit B	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..
	Total	..	1	..	..	53	19	..	49	2	6	..	29	*	..	159
24"-35"	1	..	..	..	..	..	2	4	2	..	1	..	..	..	..	9
	1-S	..	..	..	..	..	..	..	..	..	3	..	..	..	..	3
	2	..	2	..	..	..	12	..	27	..	1	..	..	..	..	42
	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	Pit B	..	10	..	..	..	23	1	5	..	..	..	2	*	20	61
	Total	..	12	..	..	..	37	5	34	..	5	..	2	*	20	115
36"-47"	1	..	..	4	..	..	20	..	11	..	..	..	..	..	..	35
	1-S	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
	2	..	2	..	..	..	53	..	55	..	..	..	..	..	..	110
	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
	Pit B	..	..	..	..	..	..	..	14	..	..	..	..	..	..	14
	Total	..	2	4	..	..	73	..	81	..	..	..	..	..	..	160
48"-59"	1	..	20	..	..	..	..	5	..	..	..	..	..	..	..	25

*Several thousand (estimate).

TABLE 23
DISTRIBUTION OF UNWORKED BONE AT SITE 45

Location	Depth	Description
Test Trench	ca. 12"	2 elk mandible fragments Elk phalanx Deer humerus fragment
Trench 1	0"-36"	Deer rib fragment Deer molars Deer and elk long bone fragments
	60"	Deer metacarpal fragment 2 deer tarsals Deer antler Unidentified bone fragment, possibly deer scapula
Trench 2	71"	Unidentified mammal bone fragment Dog mandible fragment

APPENDIX B

DISTRIBUTION OF UNWORKED BONE IN BURIALS AT SITES 8, 24, 46, AND 47*

	Location	Description
Site 8.....	Burial 1	Tip of mountain sheep horn
Site 24.....	Burial 35	15 deer long bone splinters
Site 46.....	Burial 2	Deer scapula fragment 2 deer rib fragments
	Burial 8	6 deer rib fragments
	Burial 10	20 split fragments of deer long bones and ribs
	Burial 17	Fragment of upper jaw of fisher
	Burial 24	Bird bone fragment Fragment of long bone of a mammal Fragment of upper jaw of feline, probably lynx
	Burial 27	Antler fragment Deer scapula fragment
	Burial 29	2 antler fragments Deer rib fragment 1 bone splinter
	Burial 33	2 antler fragments
	Burial 35	2 deer rib fragments 1 deer tibia fragment Deer fibula fragment Deer scapula fragment Fragment of ulna of a large bird
	Burial 38	Fragments of long bones of mammal 5 fragments of unidentified bone Fragments of unidentified bird bone
Site 47.....	Burial 1	Fragment of deer (?) rib Fragment of bird bone

* Unworked bear penis bones are discussed under Articles of Bone and Horn (see p. 92).

APPENDIX C. IDENTIFICATION OF ANIMAL AND VEGETABLE MATERIALS

The following animals were identified from worked and unworked bones.

White-tailed deer—*Odocoileus virginianus*
Mule deer—*Odocoileus hemionus*
Elk—*Cervis canadensis*
Moose—*Alces americana*
Bison—*Bison bison*
Mountain sheep—*Ovis canadensis*
Mountain goat—*Oreamus americanus*
Grizzly bear—*Ursus horribilis*
Coyote—*Canis latrans*
Cougar—*Felis concolor*
Bobcat—*Lynx rufus*
Canada lynx—*Lynx canadensis*
Fisher—*Martes pennanti*
Badger—*Taxidea taxus*
Marmot—*Marmota flaviventris*
Beaver—*Castor canadensis*
Muskrat—*Ondatra zibethica*
Whistling swan—*Cygnus columbianus*
Pileated woodpecker—*Ceophloeus pileatus picinus*
Dog
Whale

The presence of bison long bones, vertebrae, and molar teeth at a depth of four to five feet at site 11 is of interest. It is known that hunting parties crossed to the Plains from the Plateau to hunt bison and that buffalo hide and dried meat reached the Plateau through trade. But it is not likely that teeth and long bones would have been transported from the Plains. Ray¹ states that only the hides were brought back. Thus, there is evidence that at least a single bison wandered as far west as the Columbia. Reports indicate the probability that bison strays occasionally reached the plains of eastern Washington. Gibbs states, "I was told in 1853, by an old Iroquois hunter, that a lost bull had been killed twenty-five years before in the Grand Coulee; but this was an extraordinary occurrence, perhaps before unknown."² On the same page with Gibbs's statement Suckley reports the killing of a "lost" bull on Horse Plain at the junction of the Flathead and Hell Gate rivers in November, 1853. Since our bones constitute concrete evidence not based on hearsay of the presence of bison in eastern Washington, the question of identification is important. The bones and teeth were sent to the United States National Museum for identification. The following report was received from J. E. Graf, Associate Director:

The remainder of the teeth, vertebrae and limb bones belong to a bovid, larger than a domestic cow but no larger than a domestic bull. They are also about the size of a large bull

¹ Ray, *Sanpoil and Nespelem*, p. 85.

² U. S. War Department, *Reports of explorations and surveys, . . . for a railroad from the Mississippi River to the Pacific Ocean*, p. 138.

buffalo. If your evidence shows that this midden . . . is older than the period when early settlers used ox-carts then you can safely refer these bones and teeth to the American bison (*Bison bison*).

As has already been pointed out, there was no evidence of White contact at site 11, and the material at a depth of 4 to 5 feet in the undisturbed midden must date from a period considerably before 1800.

The following trees, plants, and seeds were identified from vegetal remains in graves and middens.

Cedar (bark and wood)—*Thuja plicata* Donn

Pine nuts—*Pinus ponderosa*

Seeds of cat's tooth or lemon weed—*Lithospermum ruderales* Dougl.

Hackberry (pits)—*Celtis douglassii* Planch

Wild cherry (pits)—*Prunus emarginata* (Dougl.) Walp.

Chokecherry (pits)—*Prunus virginiana* L.

Indian hemp—*Apocynum cannabinum* L.

APPENDIX D. CORRELATION OF SITES WITH THOSE LISTED BY RAY

In the course of the reconnaissance efforts were made to locate the Sanpoil, Lower Spokane, Colville, and Lakes villages in Ray's check list of native villages.¹ It is hoped that this archaeological checking will be of value in further research on the location and size of Indian settlements on the upper Columbia. Ray's list is based on information from Indian informants.

Sanpoil No. 15 (mouth of Sanpoil).

Sank test pits but found only faint traces of occupancy; the flats for one-half mile up the Sanpoil showed no traces of occupation.

Our sites 11 and 24.

Not mentioned in Ray's list.

Sanpoil No. 16 (largest winter village of Sanpoil, at Whitestone, about eight miles above the mouth of the Sanpoil). The description evidently refers to a flat about two miles above our site 24 on the same side of the river, which was investigated without results. The ground had been badly disturbed by placer mining, so the negative results are not conclusive. However, the site appeared much less favorable for a large village than site 24. It is possible that Ray's no. 16 was at our site 24, rather than at the location given by Ray's informant.

Sanpoil No. 17 (two miles above no. 16).

Not investigated.

Our site 22.

Probable fishing site at Hellgate Rapids, not mentioned by Ray.

¹ "Native Villages and Groupings of the Columbia Basin."

Sanpoil No. 18 (west side of Spokane one-half mile above mouth).

Examined; some evidence of occupation but not extensive.

Lower Spokane No. 3.

Corresponds to our site 50.

Lower Spokane No. 4.

Not investigated.

Lower Spokane No. 6 (one-half mile below Detillion bridge on north side).

Area investigated but nothing found. Area is below the rock slide burials at sites 8 and 51.

Lower Spokane No. 8 (1 mile below Detillion bridge, north side, largest Lower Spokane village).

The flat where this village was supposed to be located was easily found but extensive trenching over the whole flat brought to light only a few scattered deposits of shell. Nothing was found on the surface.

A surface survey was conducted from the mouth of the Spokane to Gifford but no extensive indications of occupation were found. This area includes Sanpoil Nos. 19 and 20 and Lower Spokane No. 1. The location of the latter is given as just below the mouth of Hunter's Creek. There is a high rock ledge at the place indicated and it would be impossible for a village to be situated there.

Colville No. 25 (one mile above Inchelium).

Trenched, but no evidence of occupation found.

A surface survey was conducted from Inchelium to Kettle Falls on the west bank but no evidence of more than sporadic occupation was found. This area includes Ray's Colville Nos. 26, 27, 28, 29, and 30.

Colville No. 31 (on west bank at Kettle Falls bridge).

Burials uncovered by bridge crew here.

Lakes No. 1 (Marcus flat 2 miles below Marcus).

Trenched, nothing found.

Lakes No. 2 (Marcus flat, one mile below Marcus at Dobson ferry landing).

Trenched, nothing found.

Lakes No. 3 (at town of Marcus).

Too disturbed to investigate.

Lakes No. 4.

Corresponds to our site 45.

Lakes No. 5 (opposite Bossburg).

No surface indications.

Lakes No. 6 (between Bossburg and Northport).

Surface survey along this stretch revealed nothing.

Lakes Nos. 7 and 8 (below Northport).

No surface indications.

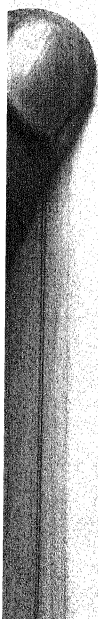
Lakes Nos. 9 and 10 (Northport).

Too disturbed to investigate.

Our sites 31, 34, 38, 40, 43, 44, and 49.

Not mentioned in Ray's list. No village is noted in the vicinity of the mouth of Sheep Creek (sites 46 and 47).

There are several possible explanations for the lack of correlation between our sites and Ray's villages. In the first place, several of our sites, site 11, for example, were abandoned too long ago to remain in the memories or traditions of living Indians. Secondly, discrepancies may be due to the failure of informants to recall some of the villages; in other cases the locations are probably inaccurate; finally, informants might have confused large village sites with small camps and vice versa.



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PLATES

EXPLANATION OF PLATES

The numbers are field catalogue numbers.

PLATE I. Stone projectile points and knives. *a* is $4\frac{3}{5}$ inches long. *a-c*, NAb₁; *f-i*, NAb₂; *j-m*, NAa.

<i>a.</i>	448	Site 11	Trench 5	<i>h.</i>	2188	Site 50	Surface
<i>b.</i>	448	Site 11	Trench 5	<i>i.</i>	2108	Site 47	Depth 51"
<i>c.</i>	1826	Site 44	Surface	<i>j</i>	632	Site 24	Trench 1
<i>d.</i>	1704	Site 49	Surface	<i>k.</i>	546	Site 24	Burial 1
<i>e.</i>	1824	Site 44	Surface	<i>l.</i>	2218	Laurier	Surface
<i>f.</i>	2008	Site 46	Burial 24	<i>m.</i>	602	Site 24	Trench 2
<i>g.</i>	2129	Site 47	Surface				

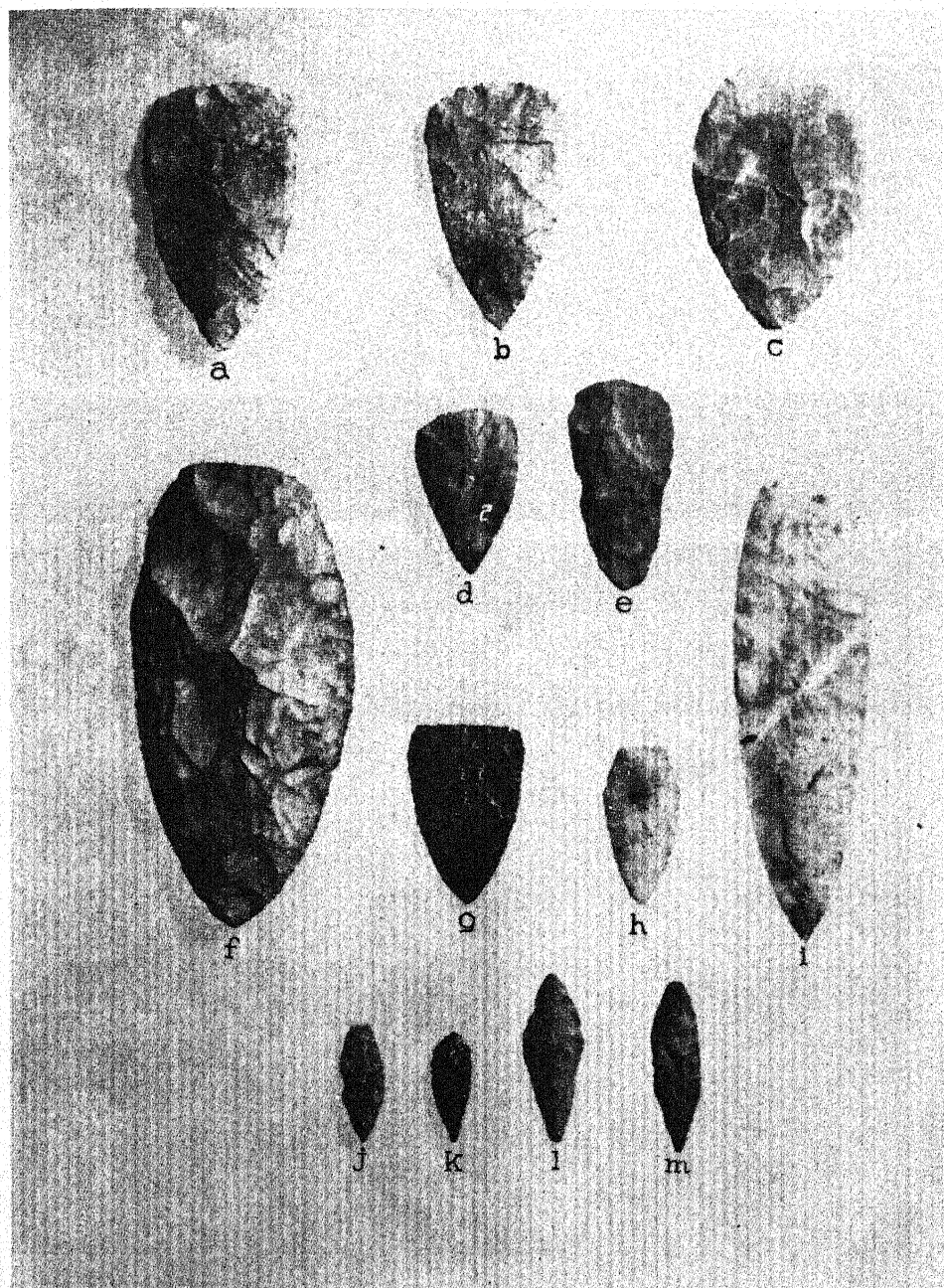


PLATE 11. Stone projectile points and knives. *a* is 2 inches long. *a-d*, NBa; *c-h*, NBb₁; *i-o*, NBb₂; *p-s*, NBc; *t-u*, NC.

<i>a.</i>	337	Site 11	Trench 4	<i>p.</i>	1610	Site 45	Surface
<i>b.</i>	1591	Stranger Creek	Surface	<i>q.</i>	1772	Site 45	Trench 2
<i>c.</i>	239	Site 11	Trench 3	<i>r.</i>	215	Site 11	Trench 3
<i>d.</i>	2017	Site 46	Burial 24	<i>s.</i>	1748	Site 45	Trench 1
<i>e-m.</i>	2086	Site 47	Burial 1	<i>t.</i>	2153	Site 46	Burial 35
<i>n.</i>	1170	Site 22	Surface	<i>u.</i>	1287	Site 34	Trench 1
<i>o.</i>	2086	Site 47	Burial 1				

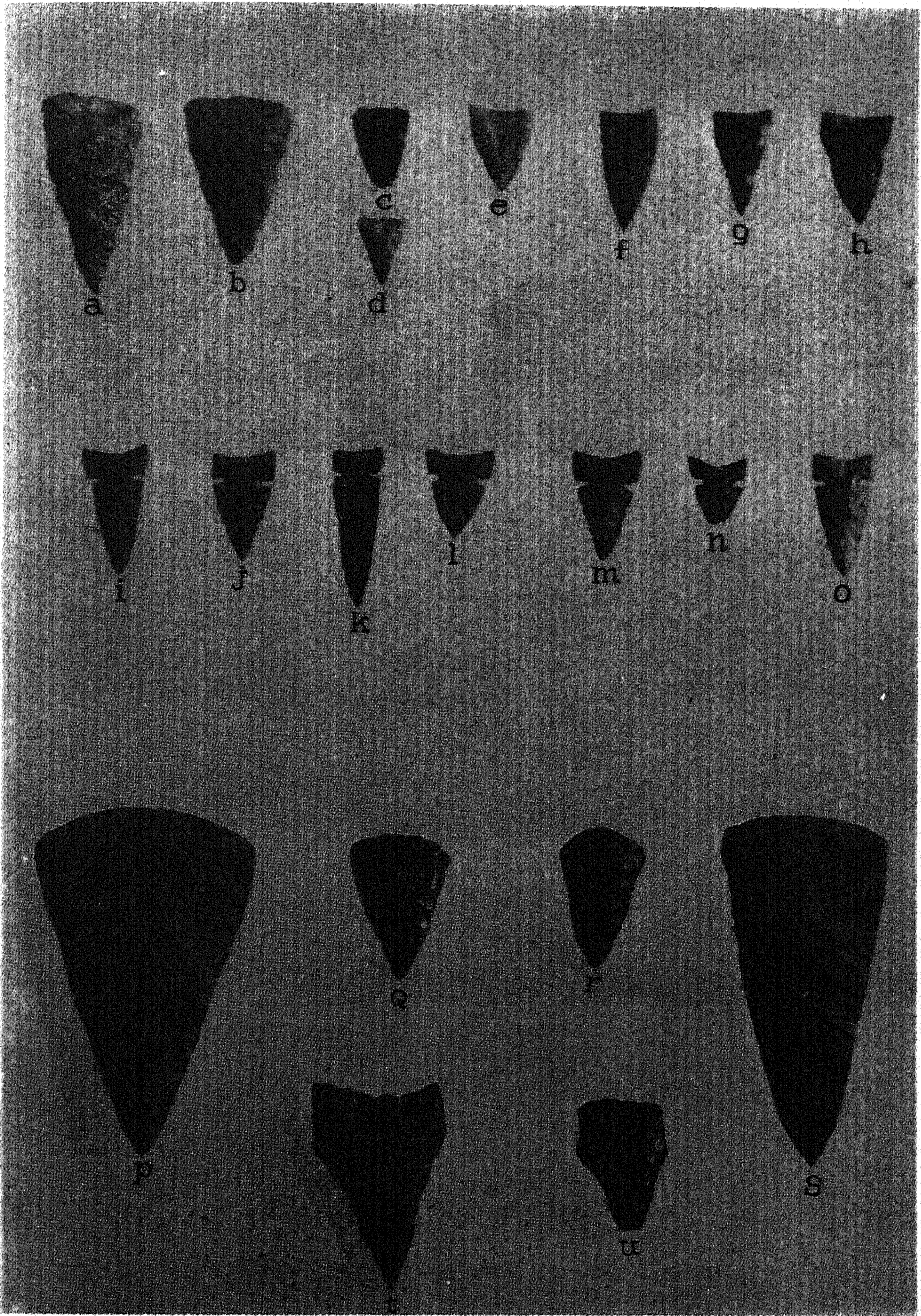


PLATE III. Stone projectile points and knives. *a* is 1 inch long. *a-b*, SAa; *c-d*, SAh; *e-g*, SBa; *h-j*, SBb; *k-l*, SCa₁; *m-o*, SCa₂; *p-r*, SCb₁; *s-y*, SCb₂; *z-cc*, SCb₃.

<i>a.</i>	39	Site 22	Surface	<i>p.</i>	2023	Site 46	Burial 24
<i>b.</i>	647	Site 24	Trench 4	<i>q.</i>	205	Site 11	Trench 4
<i>c.</i>	622	Site 24	Trench 1	<i>r.</i>	1588	Stranger Creek	Surface
<i>d.</i>	1195	Site 31	Pit B	<i>s.</i>	1892	Site 44	Surface
<i>e.</i>	2076	Site 46	Test trench	<i>t.</i>	45	Site 11	Surface
<i>f.</i>	986	Site 31	Trench 1	<i>u.</i>	38	Site 22	Surface
<i>g.</i>	593	Site 24	Trench 1	<i>v.</i>	2022	Site 46	Burial 24
<i>h.</i>	1777	Site 45	Trench 2	<i>w.</i>	104	Site 11	Trench 1
<i>i.</i>	1218	Site 31	Pit B	<i>x.</i>	342	Site 11	Trench 4
<i>j.</i>	48	Site 11	Surface	<i>y.</i>	1022	Site 31	Trench 2
<i>k.</i>	1100	Site 31	Pit A	<i>z.</i>	1525	Site 40	Trench 1
<i>l.</i>	92	Site 11	Trench 1	<i>aa.</i>	996	Site 31	Trench 1
<i>m.</i>	1895	Site 44	Surface	<i>bb.</i>	42	Site 11	Surface
<i>n.</i>	996	Site 31	Trench 1	<i>cc.</i>	232	Site 11	Trench 3
<i>o.</i>	51	Site 11	Surface				

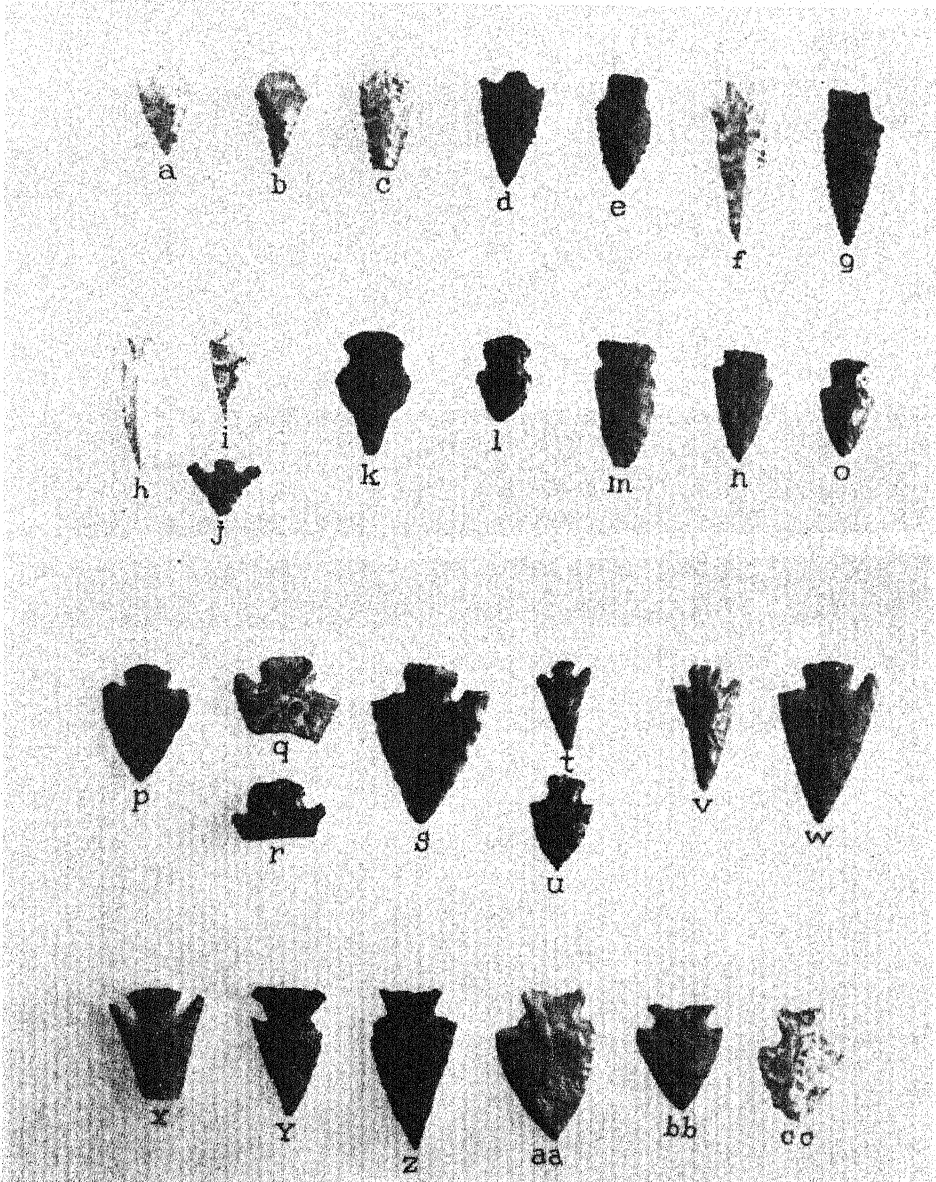


PLATE IV. Drills, gravers, and scrapers. *a* is 2½ inches long. *a-d*, drills; *e-k*, gravers; *l-q*, end scrapers; *r-s*, both end and side scrapers; *t-r*, side scrapers.

<i>a.</i>	427	Site 11	Trench 4	<i>m.</i>	879	Site 24	Trench 4
<i>b.</i>	649	Site 24	Trench 4	<i>n.</i>	330	Site 11	Trench 4
<i>c.</i>	1095	Site 31	Trench 3	<i>o.</i>	1434	Site 38	Trench 1
<i>d.</i>	1896	Site 44	Surface	<i>p.</i>	110	Site 11	Trench 2
<i>e.</i>	292	Site 11	Trench 3	<i>q.</i>	412	Site 11	Trench 3
<i>f.</i>	1507	Kettle Falls Is.	Surface	<i>r.</i>	833	Site 24	Burial 35
<i>g.</i>	878	Site 24	Trench 4	<i>s.</i>	2025	Site 46	Burial 24
<i>h.</i>	411	Site 11	Trench 5	<i>t.</i>	117	Site 11	Trench 3
<i>i.</i>	2087	Site 47	Burial 1	<i>u.</i>	61	Site 11	Surface
<i>j.</i>	1684	Site 49	Surface	<i>v.</i>	451	Site 11	Trench 5
<i>k.</i>	1267	Site 31	Pit A	<i>w.</i>	1397	Site 34	Trench 2
<i>l.</i>	1647	opp. Bossburg		<i>x.</i>	914	Site 2	Burial 9

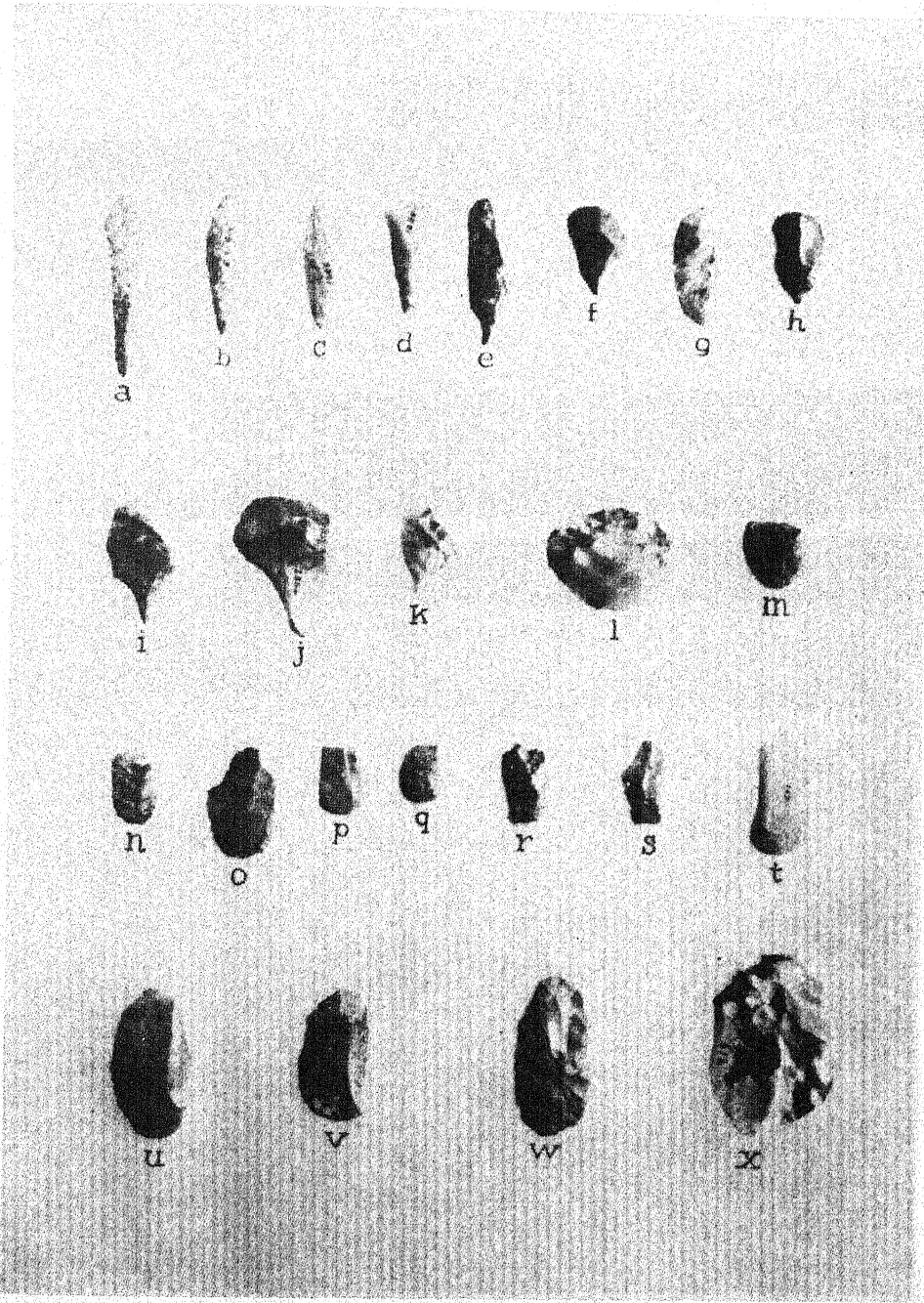


PLATE V. Flake knives and core scrapers. *a* is 1¼ inches long. *a*, serrated edge knife; *b-g*, parallel side flake knives; *h-i*, knives with two edges; *j*, knife with three edges; *k*, knife with two edges; *l-p*, miscellaneous flake knives; *q-s*, discoidal rough core scrapers.

<i>a.</i>	127	Site 11	Trench 4	<i>k.</i>	927	Site 2	Burial 3
<i>b.</i>	639	Site 24	Trench 3	<i>l.</i>	914	Site 2	Burial 9
<i>c.</i>	207	Site 11	Trench 3	<i>m.</i>	560	Site 24	Trench 1
<i>d.</i>	261	Site 11	Trench 4	<i>n.</i>	555	Site 24	Trench 1
<i>e.</i>	1232	Site 31	Pit B	<i>o.</i>	1750	Site 45	Trench 1
<i>f.</i>	282	Site 11	Trench 3	<i>p.</i>	1523	Site 39	Trench 1
<i>g.</i>	2130	Site 47	Surface	<i>q.</i>	1836	Site 44	Surface
<i>h.</i>	450	Site 11	Trench 5	<i>r.</i>	1845	Site 44	Surface
<i>i.</i>	1664	Site 45	Surface	<i>s.</i>	1837	Site 44	Surface
<i>j.</i>	984	Site 31	Trench 1				

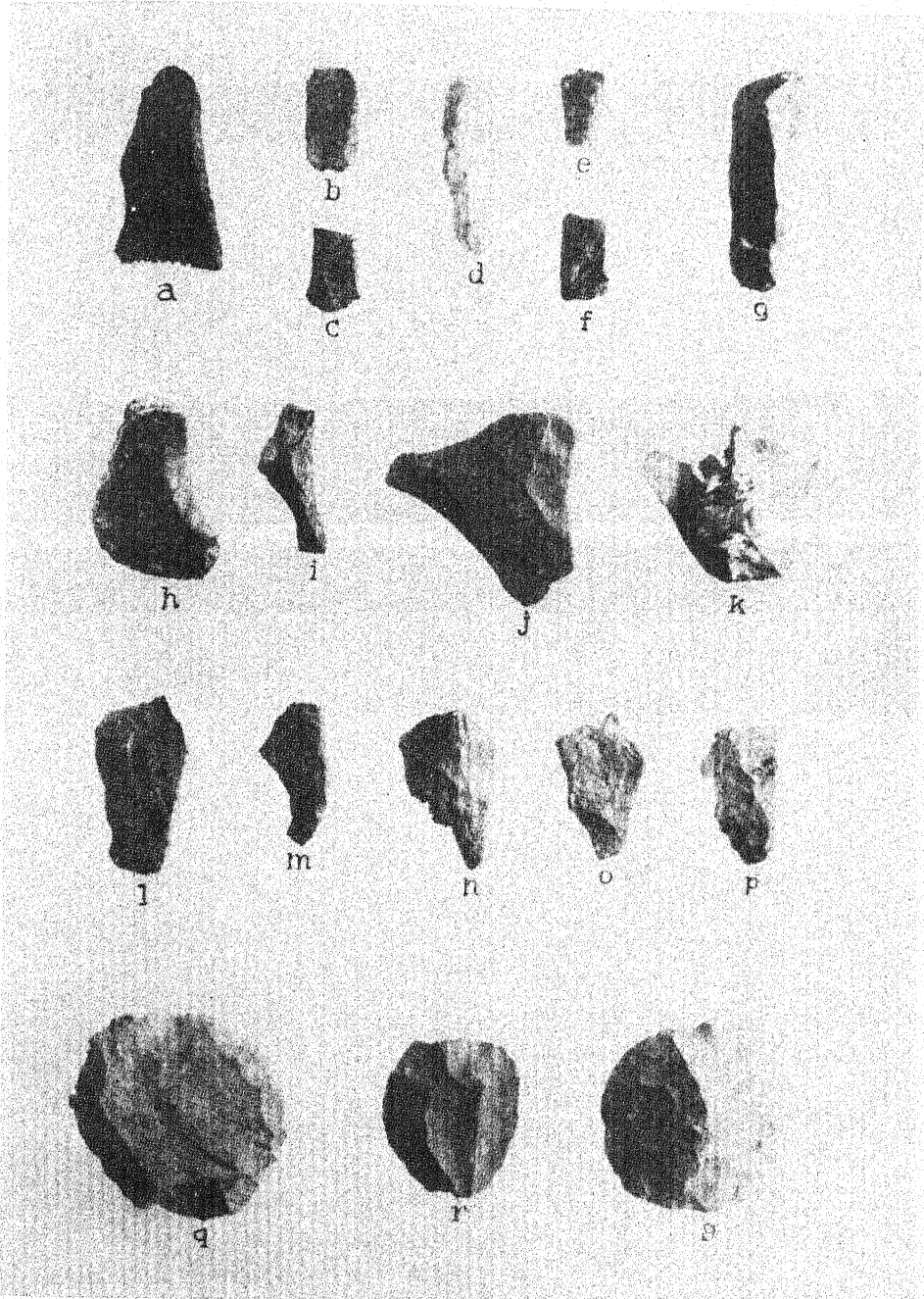


PLATE VI. Quartzite scrapers and/or knives. *a* is 3 inches across.

<i>a.</i>	674	Site 24	Burial 17A	<i>e.</i>	1322	Site 34	Trench 1
<i>b.</i>	1329	Site 34	Trench 1	<i>f.</i>	2246	Site 7A	Burial 9
<i>c.</i>	1003	Site 31	Trench 2	<i>g.</i>	1335	Site 31	Pit C
<i>d.</i>	1651	w. bank of Columbia River 1 mile above Kettle Falls.		<i>h.</i>	1274	Site 31	Pit A
				<i>i.</i>	269	Site 11	Trench 3
					1264	Site 31	Pit C

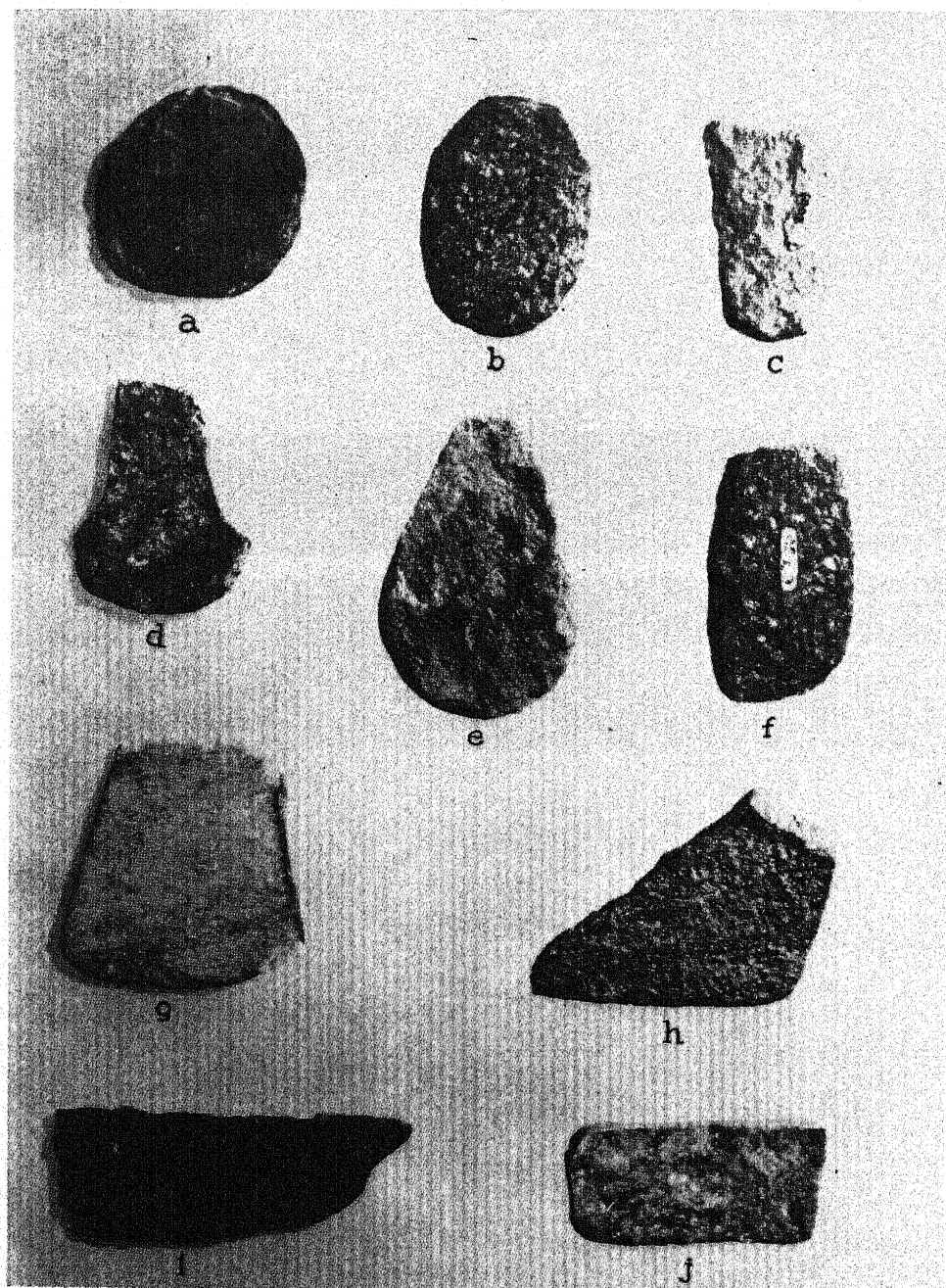


PLATE VII. Antler digging stick handles, wedges, and flakers. *a* is 11 inches long. *a-b*, digging stick handles; *c-e*, wedges; *f*, digging stick tip; *g-i*, flakers.

<i>a.</i>	1996	Site 46	Burial 22	<i>f.</i>	2014	Site 46	Burial 24
<i>b.</i>	774	Site 24	Burial 21	<i>g.</i>	1987	Site 46	Burial 17
<i>c.</i>	824	Site 24	Burial 35	<i>h.</i>	885	Site 24	Pit A
<i>d.</i>	2157	Site 46	Burial 35	<i>i.</i>	2157	Site 46	Burial 35
<i>e.</i>	1560	Site 40	Trench 1				

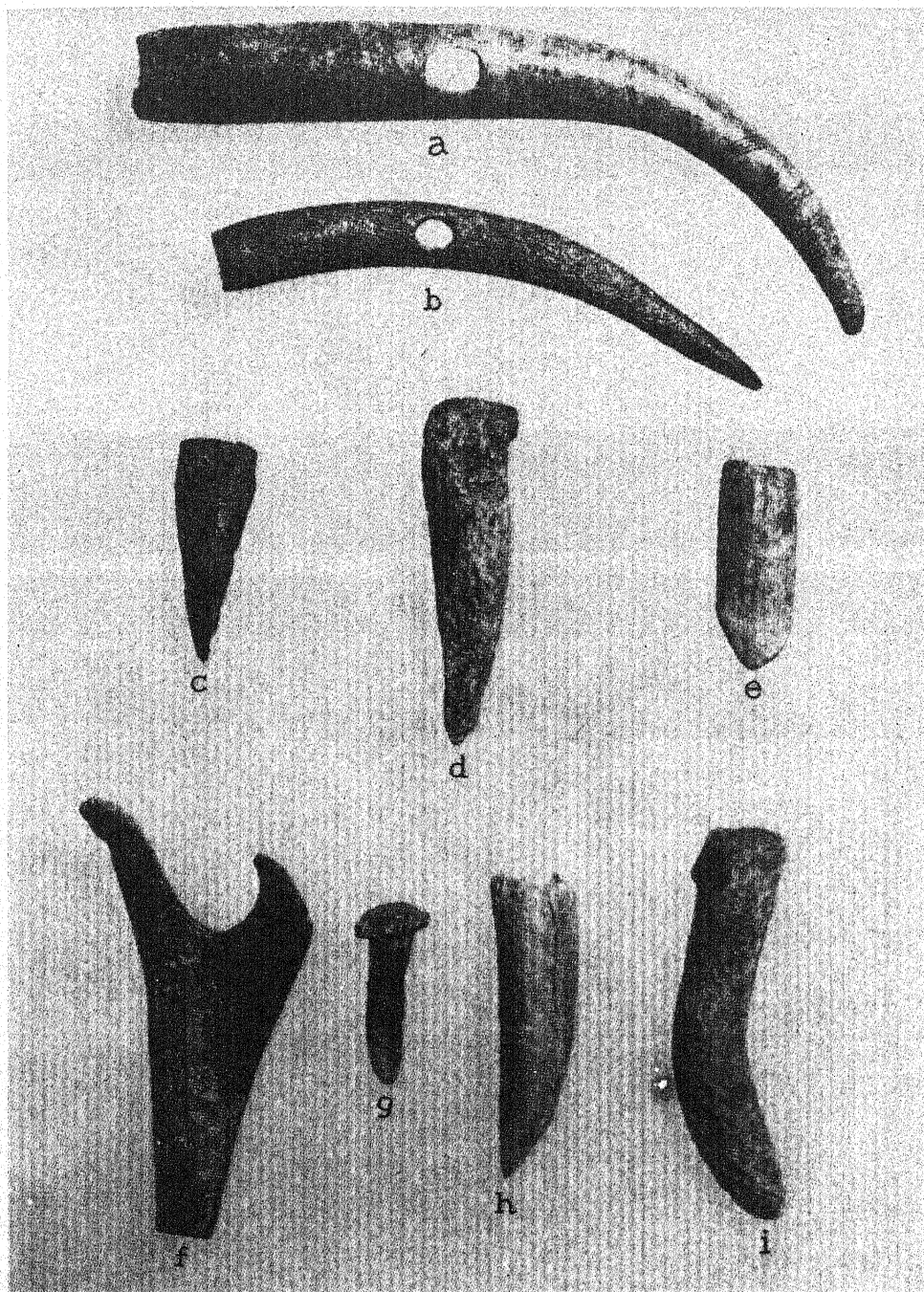


PLATE VIII. Bone points, awls, and needles. *a* is 4¾ inches long. *a-c*, spear points; *d-l*, arrow points; *m-p*, bodkins; *q-r*, needles; *s-r*, awls of split or solid long bones; *y-z*, scapula awls.

<i>a.</i>	2097	Site 47	Burial 1	<i>n.</i>	638	Site 24	Trench 3
<i>b.</i>	823	Site 24	Burial 35	<i>o.</i>	719	Site 24	Burial 10
<i>c.</i>	2095	Site 47	Burial 1	<i>p.</i>	719	Site 24	Burial 10
<i>d.</i>	2000-14	Site 46	Burial 23	<i>q.</i>	710	Site 24	Burial 6
<i>e.</i>	2000-13	Site 46	Burial 23*	<i>r.</i>	596	Site 24	Trench 1
<i>f.</i>	318	Site 11	Trench 3	<i>s.</i>	1987	Site 46	Burial 17
<i>g.</i>	2039-16	Site 46	Burial 24	<i>t.</i>	609	Site 24	Trench 1
<i>h.</i>	2000 22	Site 46	Burial 23	<i>u.</i>	2039	Site 46	Burial 24
<i>i.</i>	2000 18	Site 46	Burial 23	<i>v.</i>	1103	Site 31	Burial 1
<i>j.</i>	1987-20	Site 46	Burial 17	<i>w.</i>	1528	Site 40	Trench 1
<i>k.</i>	2098	Site 47	Burial 1	<i>x.</i>	565	Site 24	Trench 1
<i>l.</i>	2039-22	Site 46	Burial 24	<i>y.</i>	735	Site 24	Burial 12
<i>m.</i>	719	Site 24	Burial 10	<i>z.</i>	1983-1	Site 46	Burial 16

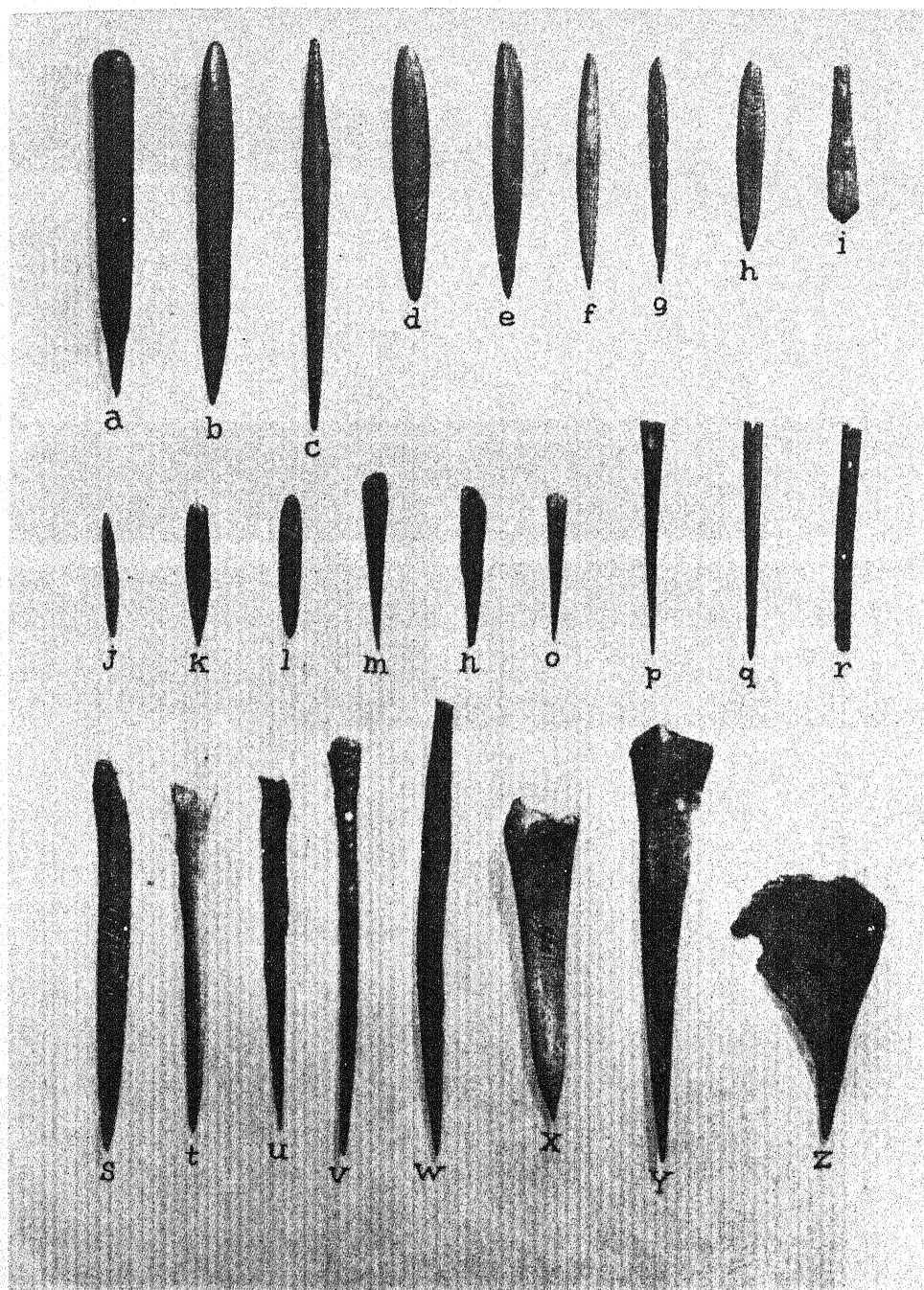


PLATE IX. Miscellaneous bone implements. *a* is $22\frac{3}{4}$ inches long. *a*, whale bone club; *b-c*, arrow wrenches; *d-e*, spatulates; *f*, flesher; *g*, knife; *h-l*, harpoon points; *m*, whistle.

<i>a.</i>	921	Site 2	Burial 12	<i>h.</i>	2100	Site 47	Burial 1
<i>b.</i>	2089	Site 47	Burial 1	<i>i.</i>	2000	Site 46	Burial 23
<i>c.</i>	1784	Site 8	Burial 1	<i>j.</i>	1987	Site 46	Burial 17
<i>d.</i>	2039	Site 46	Burial 24	<i>k.</i>	1987	Site 46	Burial 17
<i>e.</i>	2039	Site 46	Burial 24	<i>l.</i>	1963	Site 46	Burial 5
<i>f.</i>	1958	Site 46	Burial 2	<i>m.</i>	2094	Site 47	Burial 1
<i>g.</i>	2093	Site 47	Burial 1				

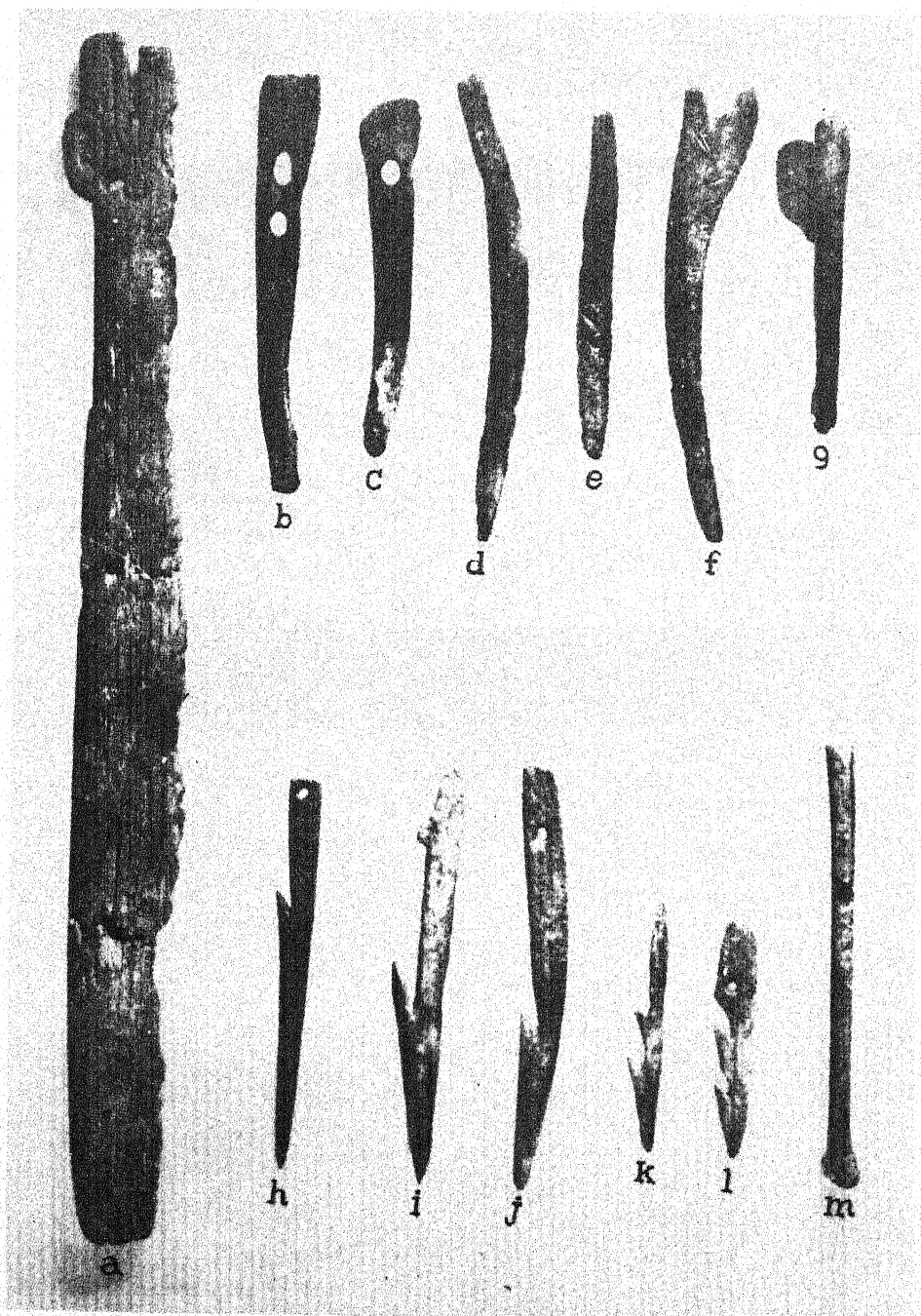


PLATE X. Miscellaneous bone implements and ornaments. *a* is 10 inches long. *a-d*, pointed bone implements; *e*, teeth of comb; *f*, decorated bone ornament; *g*, finger ring of mountain goat horn; *h*, bone pendant; *i*, incised bone bead; *j-k*, bone beads; *l*, bear tooth; *m*, lynx tooth; *n*, cougar claw; *o*, bear claw; *p-u*, beaver tooth dice.

<i>a-d</i>	2102	Site 47	Burial 1	<i>l.</i>	2037	Site 46	Burial 24
<i>e.</i>	2088	Site 47	Burial 1	<i>m.</i>	?	Dobson Ferry	Test pit
<i>f.</i>	2124	Site 47	Burial 8	<i>n.</i>	2126	Site 47	Burial 8
<i>g.</i>	641	Site 24	Trench 3	<i>o.</i>	898	Site 24	Burial 15
<i>h.</i>	1543	Site 7A	Burial 3	<i>p-q.</i>	792	Site 24	Burial 23
<i>i.</i>	686	Site 24	Burial 1	<i>r-l.</i>	1543	Site 7A	Burial 3
<i>j.</i>	1996	Site 46	Burial 22	<i>u.</i>	799	Site 24	Burial 25
<i>k.</i>	899	Site 24	Burial 15				

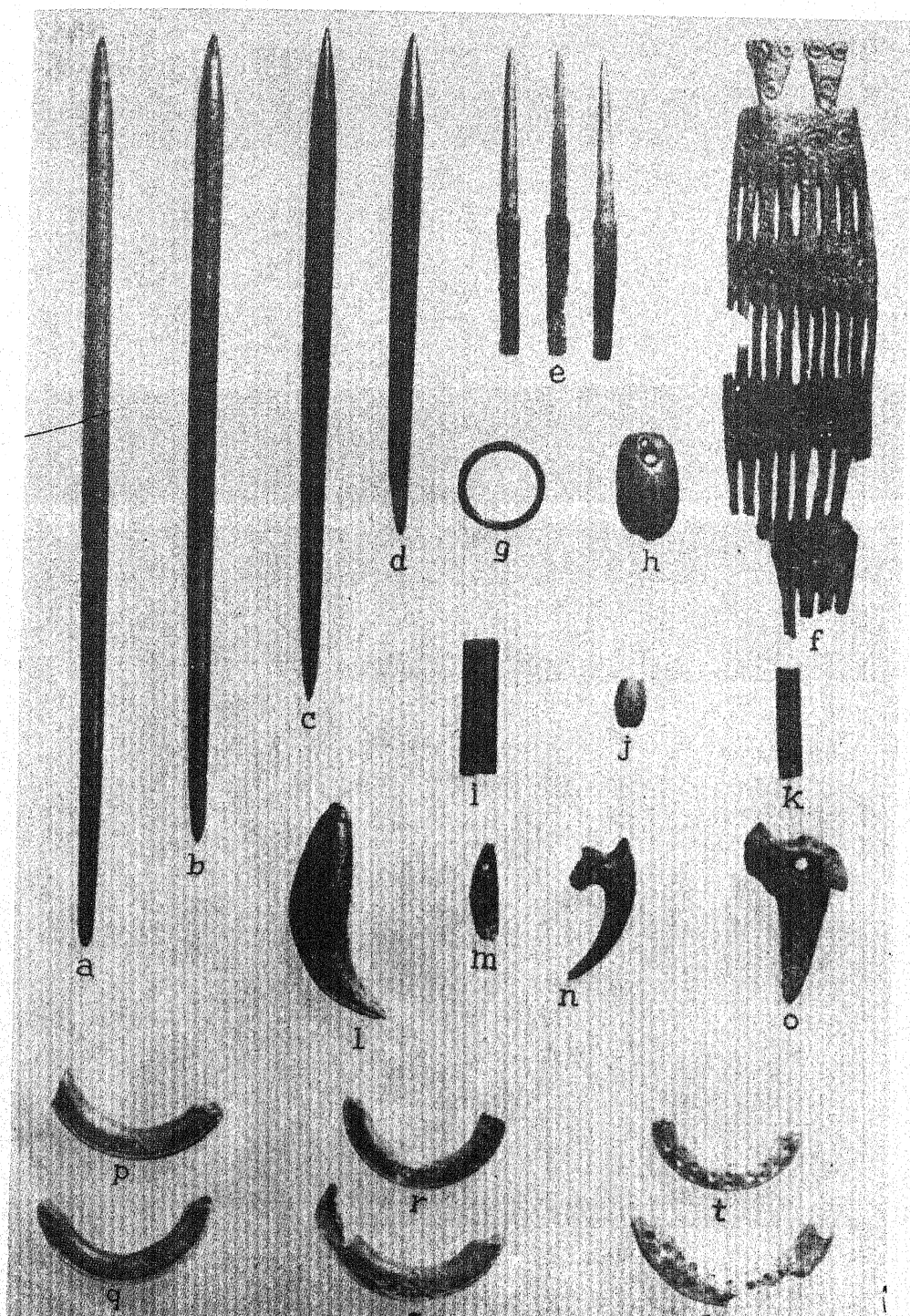


PLATE XI. Shell ornaments and beads. *a* is $2\frac{3}{4}$ inches across. *a-b*, shell rings; *c*, abalone pendant; *d-e*, shell pendants or dangles; *f*, strung dentalium segments; *g*, whole dentalia strung on buckskin (type 4a); *h*, shell pendant; *i*, turquoise pendant; *j*, dentalium and copper necklace; *k-m*, shell disc beads; *n*, whole dentalia; *o-q*, olivella beads.

<i>a-b.</i>	2186	Site 50	Burial 3	<i>k.</i>	2207	Site 50	Burial 2
<i>c.</i>	2115	Site 47	Burial 3	<i>l.</i>	2187	Site 50	Burial 3
<i>d-e.</i>	2299	Site 47	Burial 10	<i>m.</i>	693	Site 24	Burial 2
<i>f.</i>	1546	Site 7A	Burial 4	<i>n.</i>	690	Site 24	Burial 2
<i>g.</i>	781	Site 24	Burial 21	<i>o.</i>	2187	Site 50	Burial 3
<i>h.</i>	2213	Site 51	Burial 1	<i>p.</i>	768	Site 24	Burial 19
<i>i.</i>	2299	Site 47	Burial 10	<i>q.</i>	2105	Site 47	Burial 1
<i>j.</i>	689	Site 24	Burial 2				

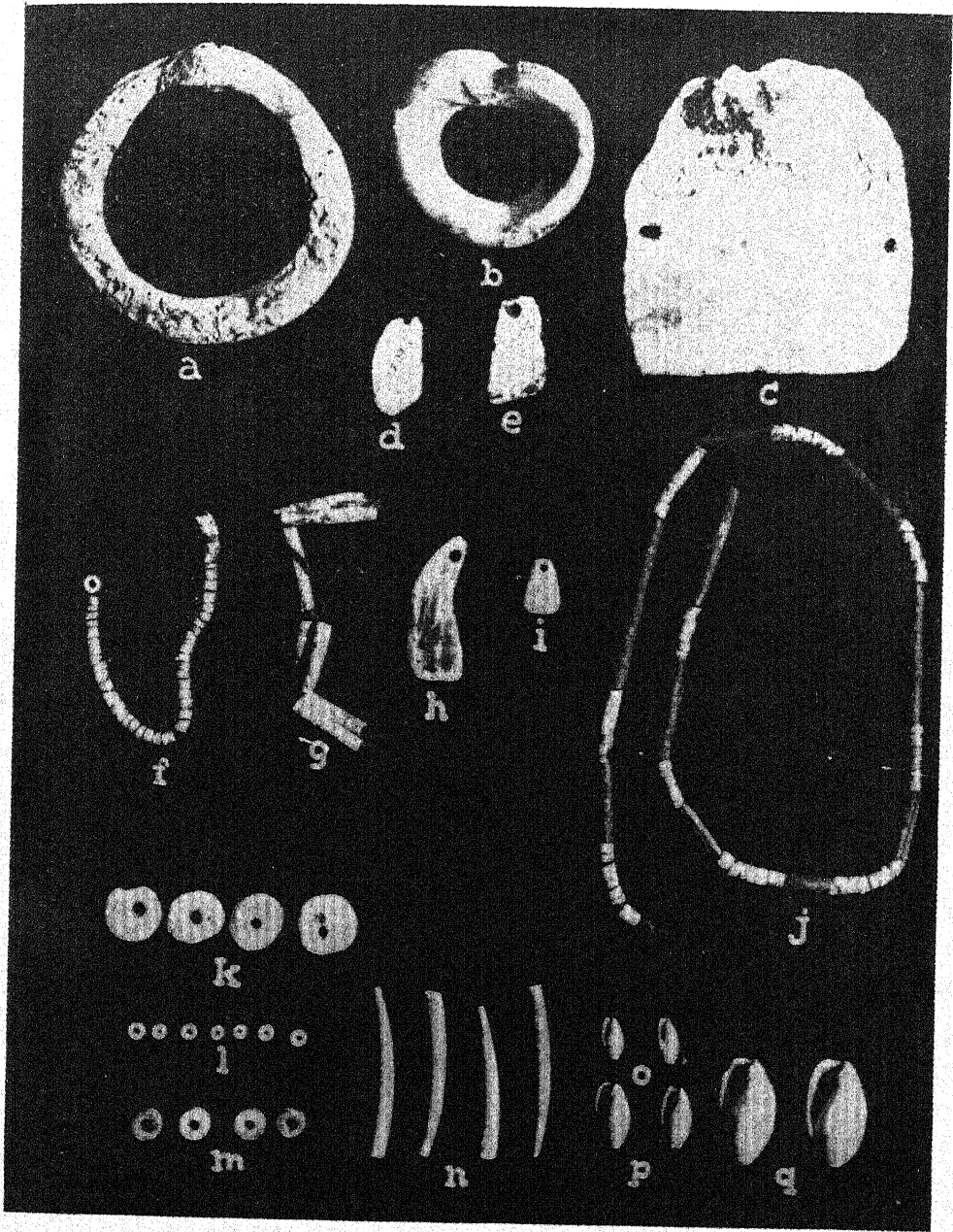


PLATE XII. Shell and copper ornaments. *a* is 5 inches across. *a*, abalone pendant; *b*, copper pendant; *c*, copper disc; *d*, shell and copper strung beads; *e*, copper knife-like ornament; *f*, copper disc.

<i>a.</i>	747	Site 24	Burial 15	<i>d.</i>	758	Site 24	Burial 17
<i>b.</i>	2202	Site 48	Burial 4	<i>e.</i>	2205	Site 48	Burial 5
<i>c.</i>	2201	Site 48	Burial 4	<i>f.</i>	2193	Site 48	Burial 2

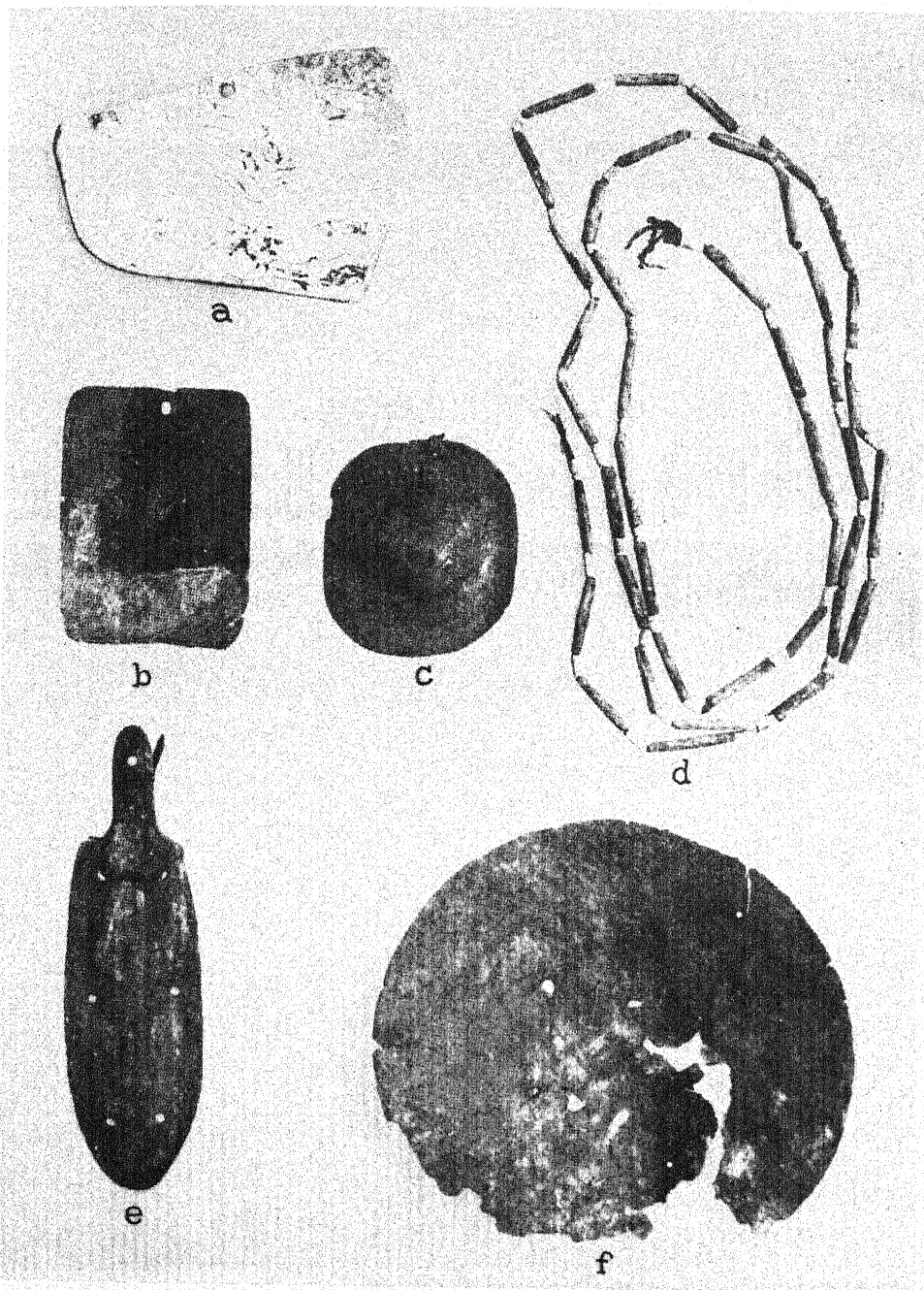


PLATE XIII. Articles of copper and iron. *a* is 5 inches long. *a-d*, rolled copper tubular beads; *e*, copper pendant; *f*, copper pendant and beads; *g*, copper button; *h*, copper button used as pendant; *i*, copper bell; *j*, slate pendant; *k-l*, copper bracelets; *m*, copper conchoidal disc; *n*, iron axe.

<i>a.</i>	2206	Site 48	Burial 5	<i>h.</i>	2213	Site 51	Burial 1
<i>b.</i>	762	Site 24	Burial 17	<i>i.</i>	797	Site 24	Burial 25
<i>c.</i>	700	Site 24	Burial 4	<i>j.</i>	1196-4	Site 46	Burial 32
<i>d.</i>	762	Site 24	Burial 17	<i>k.</i>	2085	Site 47	Burial 1
<i>e.</i>	700	Site 24	Burial 4	<i>l.</i>	729	Site 24	Burial 11
<i>f.</i>	1547	Site 7A	Burial 4	<i>m.</i>	2299	Site 47	Burial 10
<i>g.</i>	2231	Disturbed burial		<i>n.</i>	2212	Site 51	Burial 1

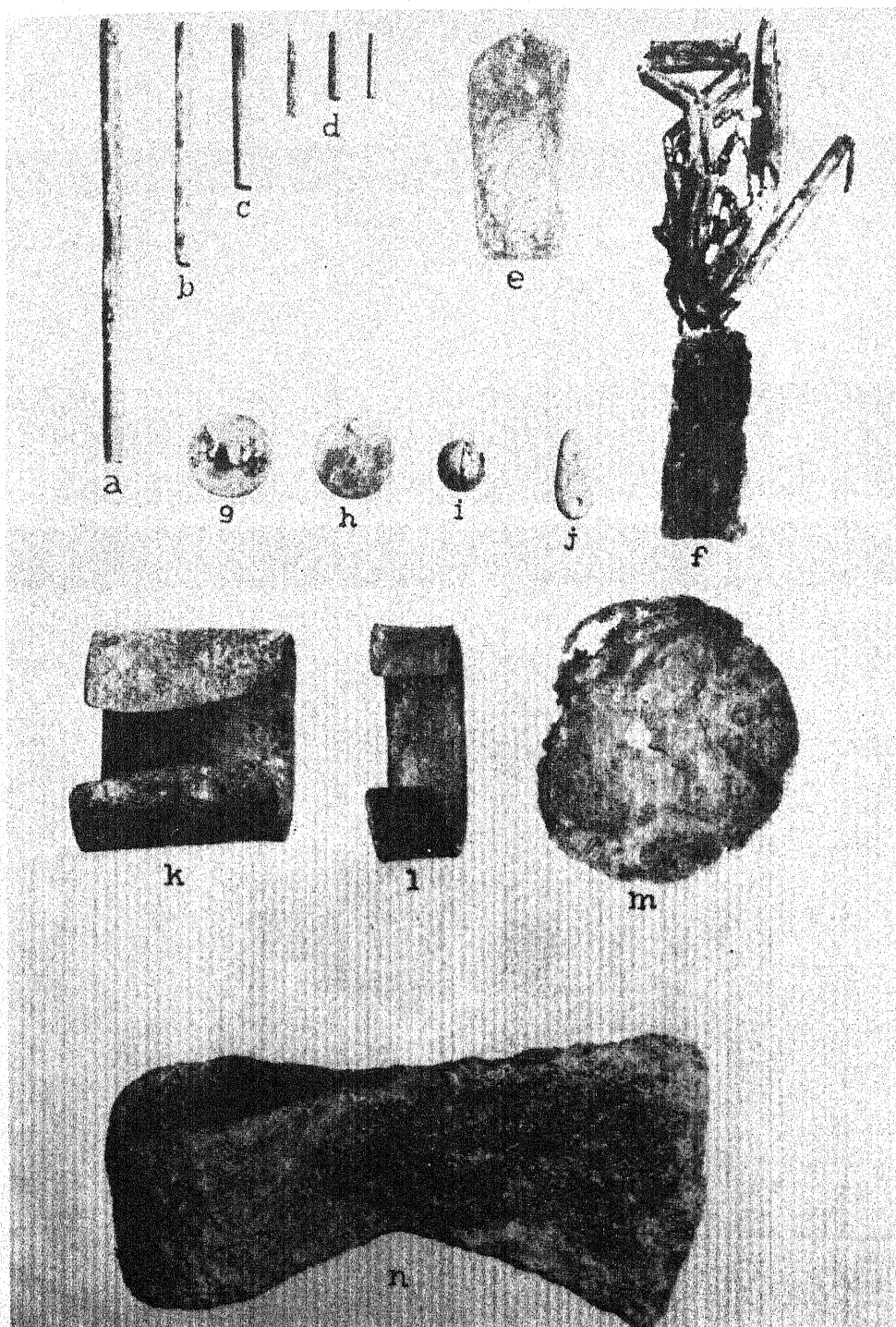


PLATE XIV. Stone pipes and arrowshaft smoothers. *a* is 7¼ inches long. *a-f*, tubular pipes; *g*, elbow pipe; *h-j*, arrowshaft smoothers.

<i>a.</i>	2109	Site 47	Unassoc.	<i>f.</i>	1998	Site 46	Burial 22
<i>b.</i>	1783	Site 8	Disturbed	<i>g.</i>	1782	Site 8	Burial 1
			burial	<i>h.</i>	2069	Site 46	Unassoc.
<i>c.</i>	2005	Site 46	Burial 23	<i>i.</i>	2092	Site 47	Burial 1
<i>d.</i>	1967	Site 46	Burial 7	<i>j.</i>	2180	Site 51	Disturbed
<i>e.</i>	2162	Site 46	Burial 38				burial

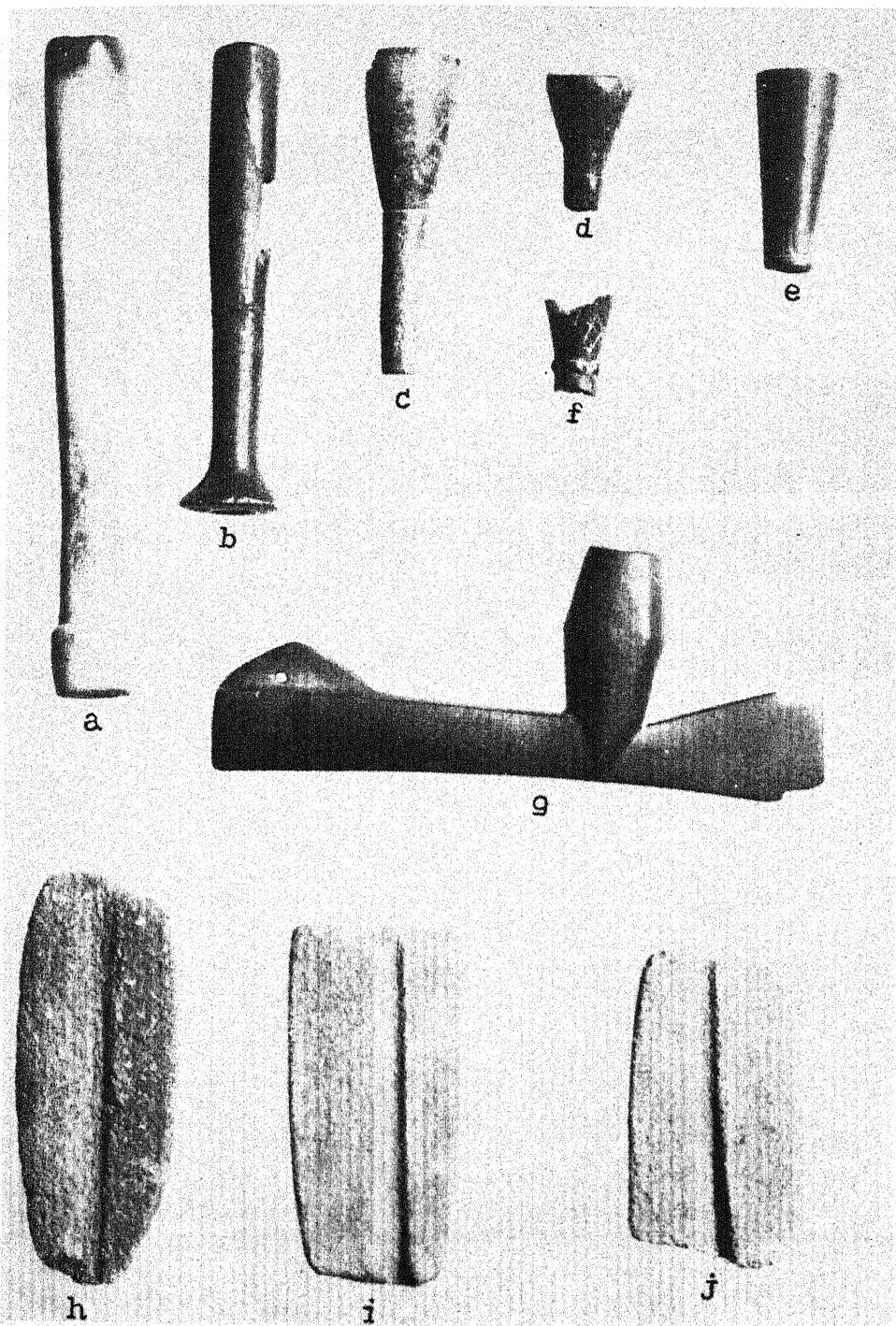


PLATE XV. Celts and other ground stone implements. *a* is 11½ inches long. *a-d*, celts; chisel; *f*, celt; *g-h*, slate awls or pointed implements; *i*, whetstone.

<i>a.</i>	2164	Site 46	Burial 38	<i>f.</i>	2067	Site 46	Unassoc.
<i>b.</i>	2111	Site 47	Unassoc.	<i>g.</i>	1996	Site 46	Burial 22
<i>c.</i>	733	Site 24	Burial 12	<i>h.</i>	2033	Site 46	Burial 24
<i>d.</i>	2117	Site 47	Burial 4	<i>i.</i>	17	Site 23	Surface
<i>e.</i>	1627	Site 43	Surface				

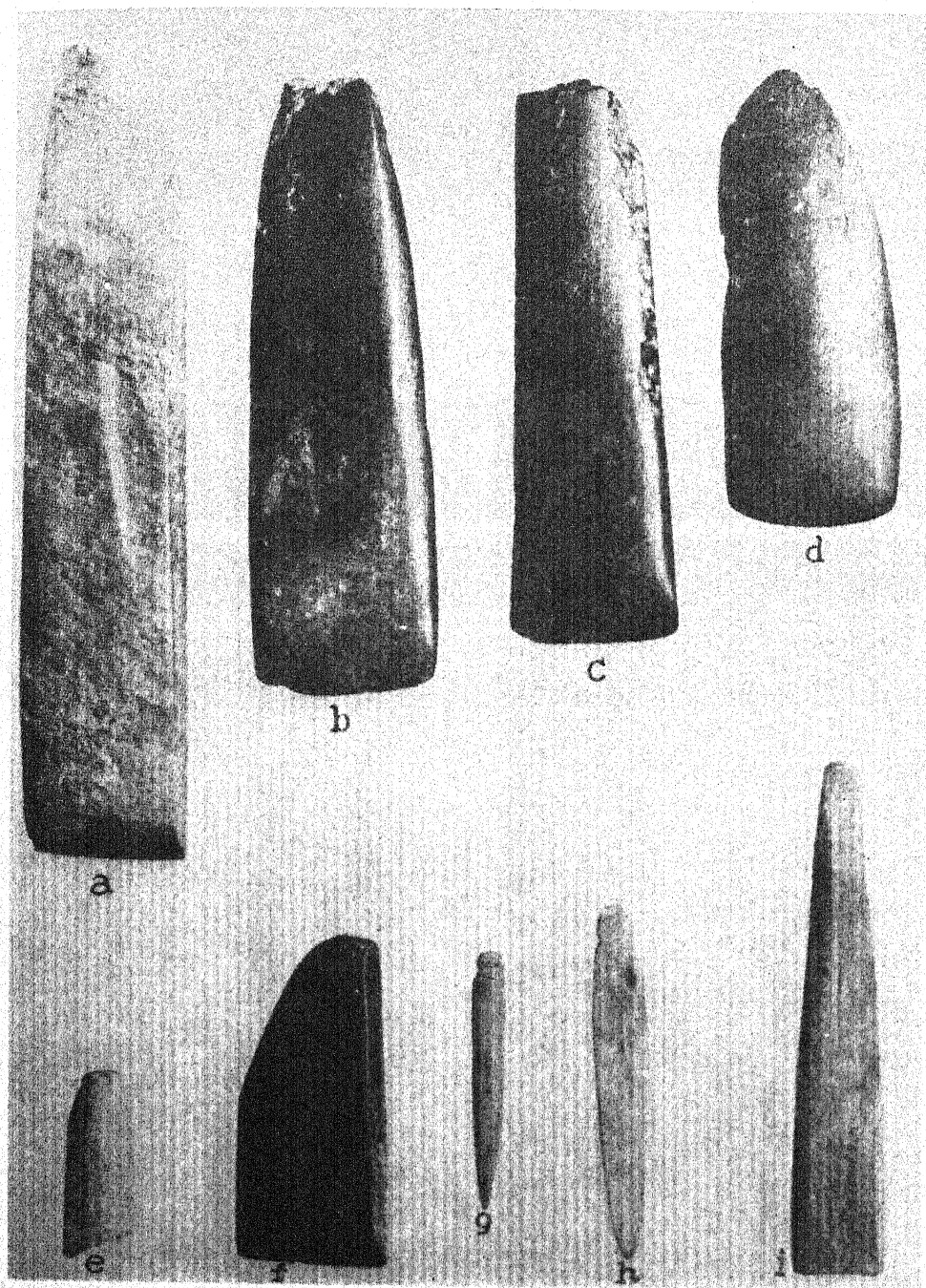


PLATE XVI. Pestles and mauls. *a* is 12¼ inches long. *a-c*, pestles; *f*, problematical chipped slate object; *g-m*, mauls.

<i>a.</i>	913	Site 11	Burial 9	<i>h.</i>	2065	Site 46	Test trench
<i>b.</i>	1802	Site 8	Burial 6	<i>i.</i>	911	Site 2	Burial 9
<i>c.</i>	2239	Arden	Surface	<i>j.</i>	730	Site 24	Burial 11
<i>d.</i>	1339	Site 34	Trench 1	<i>k.</i>	691	Site 24	Burial 2
<i>e.</i>	1921	Site 44	Surface	<i>l.</i>	703	Site 24	Burial 5
<i>f.</i>	264	Site 8	Surface	<i>m.</i>	2045	Site 46	Surface
<i>g.</i>	2042	Site 46	Surface				

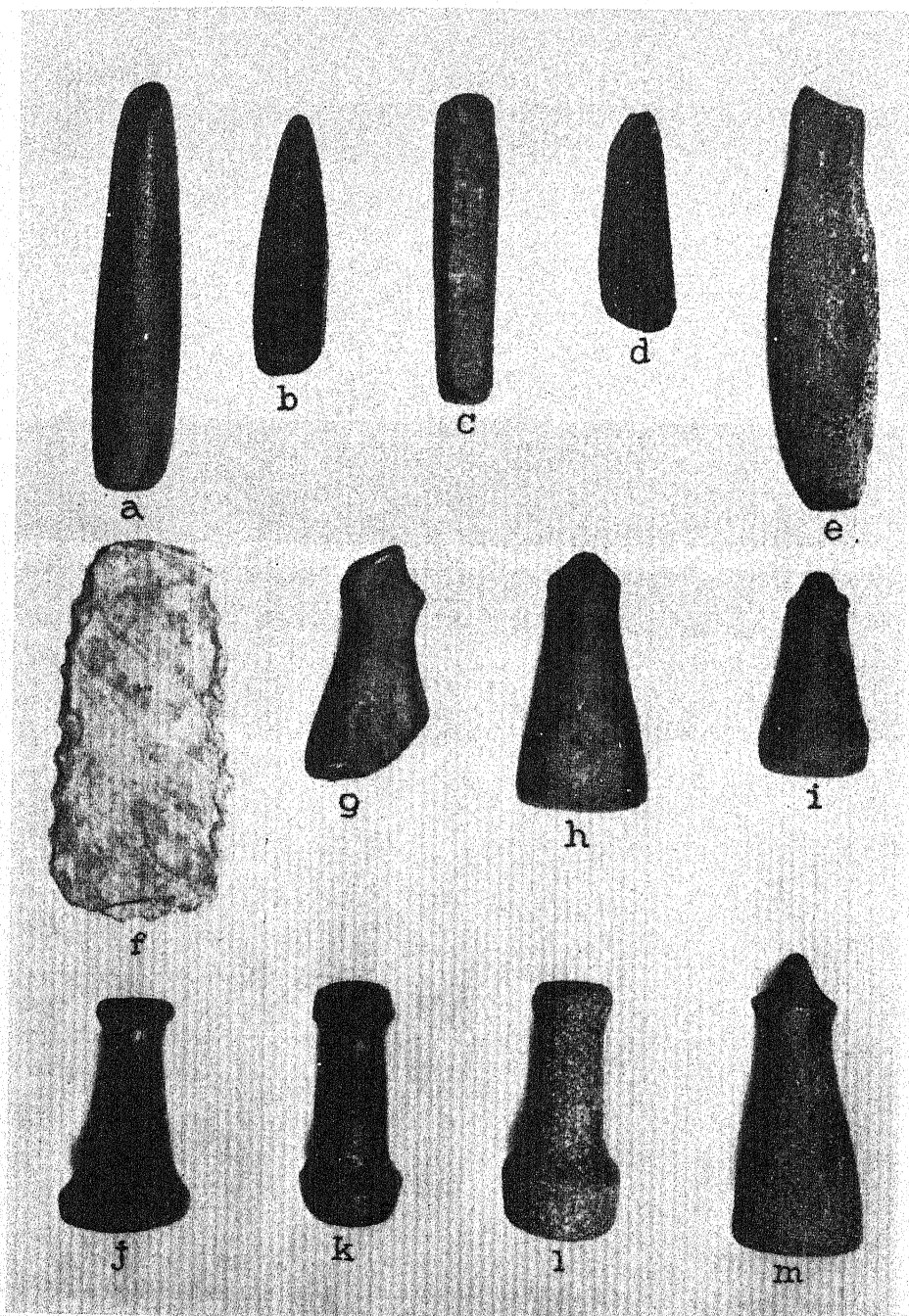
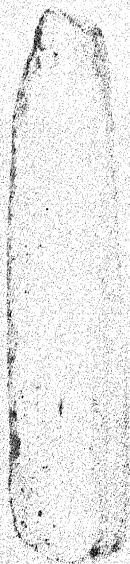


PLATE XVII. Miscellaneous ground and chipped stone implements. *a* is 25 inches long. *a-b*, uncompleted pestles or hammerstones; *c-e*, hammerstones; *f*, notched sinker; *g*, girdled sinker; *h*, chopper; *i*, notched sinker; *j-k*, girdled sinkers; *l-m*, notched sinkers.

<i>a.</i>	684	Site 24	Trench 3	<i>h.</i>	2294	Gleason R.	Surface
<i>b.</i>	683	Site 24	Trench 3	<i>i.</i>	405	Site 11	Surface
<i>c.</i>	1683	Site 49	Surface	<i>j.</i>	942	Site 2	Surface
<i>d.</i>	954	Site 2	Burial fill	<i>k.</i>	3	Site 11	Surface
<i>e.</i>	1529	Site 40	Trench 1	<i>l.</i>	950	Site 2	Surface
<i>f.</i>	955	Site 29	Surface	<i>m.</i>	390	Site 25	Surface
<i>g.</i>	1682	Site 45	Surface				



a



b



c



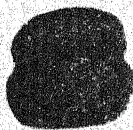
d



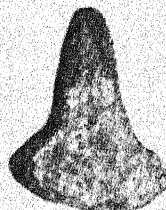
e



f



g



h



i



j



k



l



m

PLATE XVIII. General Views of Sites.

- a.* Site 24, looking east up the Columbia River. Figures in foreground are standing beside site 24 trenches; mouth of Whitestone Creek in center foreground; site 7A on point across the creek; site 5 at base of cliff in left background.
- b.* Site 34 looking west across Columbia River. Trench 2 in foreground.
- c.* Site 11 looking east toward sites 24, 7, and 5.
- d.* Scene at Keller's ferry, from north side of river. Site 2 along bank marked by tree at center.
- e.* Hearth, trench 1, site 45 (p. 31).

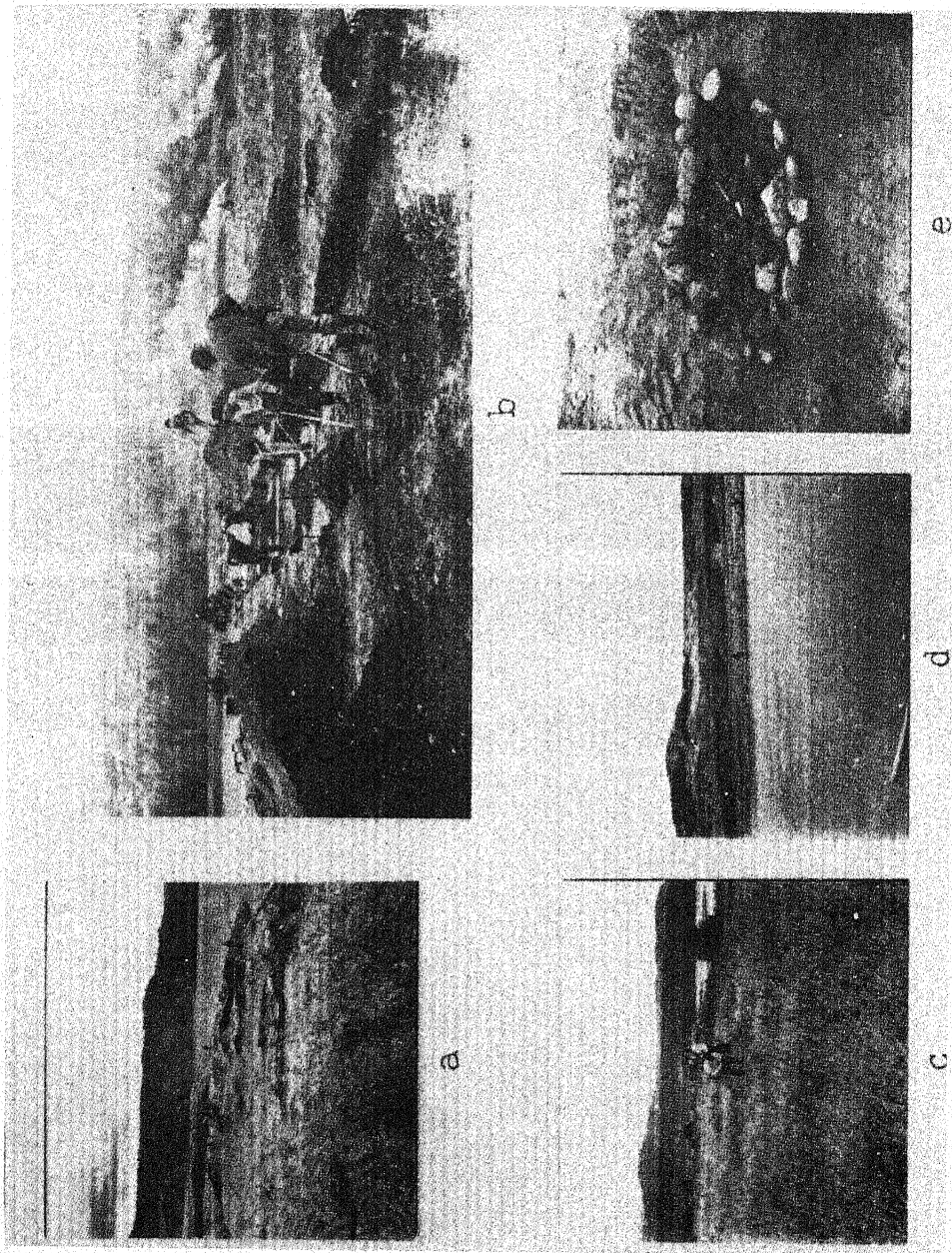
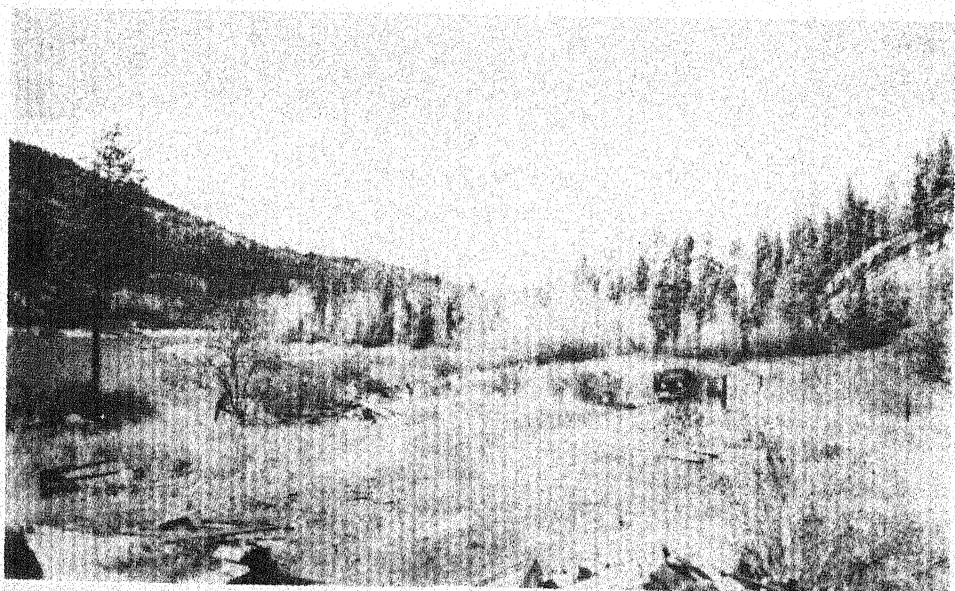


PLATE XIX. General views.

- a.* Camp Ferris, project headquarters at Marcus from May to September, 1940.
- b.* Site 38, looking north.



a



b

PLATE XX. Types of burial markers.

- a.* Upright charred cedar planks over burial 9, site 2. Trowel points north.
- b.* Upright charred cedar planks over burial 3, site 7A. Bone awl *in situ* at left center. Trowel points north.
- c.* Rocks at surface over burial 1 and burial 2, site 7A. Trowel points north. Note location of burials in relation to river.
- d.* Rock slide burial; burial 6, site 48, showing cedar stake marker.

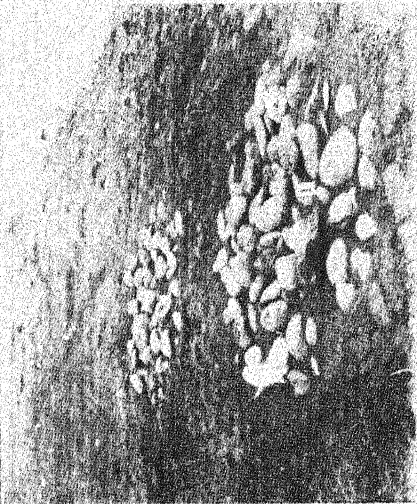
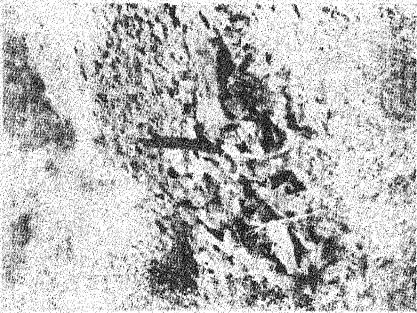
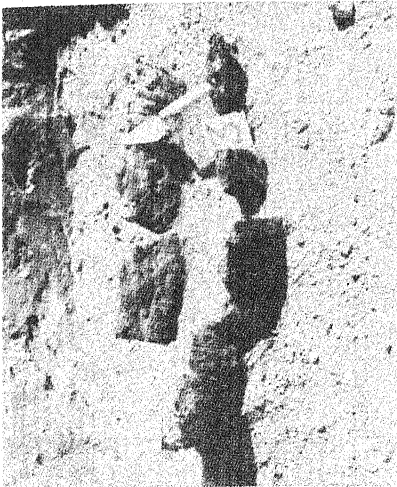
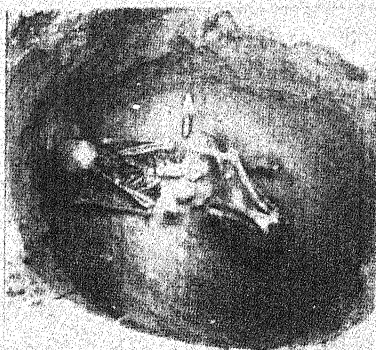
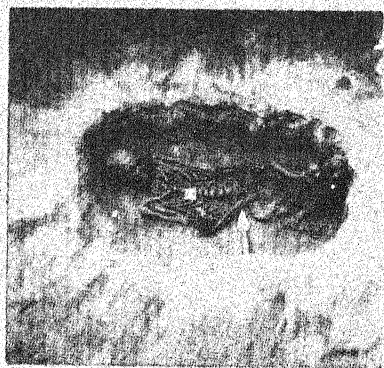


PLATE XXI. Pit burials, site 24.

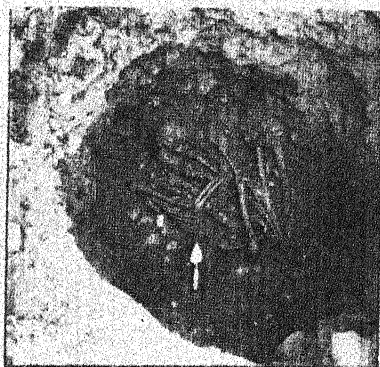
- a.* Burial 13, adult, semi-flexed. Trowel points north.
- b.* Burial 25, adult, knees up, arms extended. Elk teeth and shell beads on right elbow. Trowel points north.
- c.* Burial 1, adult, loosely flexed. Trowel points north.
- d.* Burial 17, infant, semi-flexed, showing dentalium and copper tubular beads wrapped around body. Trowel points north.



a



b



c



d

PLATE XXII. Petroglyphs.

a, b, c, d. Petroglyphs, site 36. Scale approximately the same for all.

